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Therapeutic Gazette

WHOLE SERIES, VOL. XXVIII. DETROIT, MICH., SEPTEMBER 15, 1904. THIRD SERIES, VOL. XX, NO. 9.

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Original Communications.

FEEDING AND THE REST CURE IN TYPHOID FEVER.[1]

BY H. A. HARE, M.D.,

Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

In casting about for a subject which would be worthy of your attention this evening I confess that I have had some difficulty in deciding upon the theme which would prove most interesting. On the one hand I might bring before you certain questions which can only be decided by experimental research, and on the other it is possible to call your attention to equally timely, but more practical, subjects, which perhaps can be immediately utilized with advantage in practice. In addressing a body of medical men which possesses a wide clinical experience obtained first in the wards of the Presbyterian Hospital, and secondly in private practice, one cannot help feeling that he occupies the position of one who comes to obtain information rather than to give it. This is my attitude to-night, and if in the course of my remarks I touch upon subjects which seem to you hackneyed and already exhausted, you must recognize that they are themes which strike me as being of importance in my own experience in which perhaps you may be interested, and from which, in the discussion which I hope is to follow, I may perhaps gain much from the ideas which will be

[1] Read before the alumni of the Presbyterian Hospital, New York, May, 1904.

advanced by those who are first courteous enough to listen to me.

The first subject of which I wish to speak is that which deals with the question of the amount of food which should be given to a patient suffering from typhoid fever at the three stages of his disease. I think that every one is agreed that during the first week of his illness the diet should be liquid, since at this time all portions of the body are apparently less able to carry out their functions in a normal manner than they are in the second and third week of the disease. In cases which have considerable severity at onset it has always seemed to me that the digestive system was more disturbed in the first few days of the illness than later on. I am one of those who are firmly convinced that for many years we have been making a grave mistake in confining patients suffering from typhoid fever to a purely milk diet. This fact was borne in upon me forcibly about seven years ago when suffering from a prolonged attack of typhoid fever, which while it was severe in many respects, particularly in its complications, nevertheless left my brain during most, if not all, of the illness as capable of thought as it is at this moment. While I did not suffer from hunger in the sense of having an appetite, I was continually conscious of the fact that I was underfed, and I also knew that even when in health I could not take large quantities of milk with good results. When it came to the ingestion of considerable amounts of what might be called "hospital milk," I felt that I was receiving little more than water, and many hours of thought convinced me that on the one hand I was being attacked by the bacillus of Eberth, and that on the other my powers of vital resistance were being reduced by partial starvation.

Immediately after this I began giving those cases of typhoid fever which came under my care a varied diet of liquid and semi-solids, and since that time I have been greatly impressed at each term of hospital service by the advantages of this method of feeding. We must recollect that the average adult requires at least 2500 calories a day for normal existence, and as each quart of milk represents only about 500 to 600 calories, it is evident that for a patient to receive the total number of calories required for the maintenance of his body he must drink not less than 4½ quarts of milk a day. These facts further impress us with the utter inadequacy of the pure milk diet in this disease. Nor can we help appreciating the fact that we are overloading the organs of absorption and elimination with an excess of fluid, which certainly cannot be advantageous, although of course an excess of liquid in typhoid fever is preferable to a lack of it.

Again, I can see nothing in the clinical history or pathology of this disease which in any way justifies us in disordering metabolism by the institution of a rigid single diet; and I doubt if there is a man in my audience who can go to bed for a period of a month or six weeks and receive an absolute milk diet for that period of time without emerging very much the worse for wear.

It is my custom to give all patients after the first week of typhoid from one to two soft-boiled eggs a day in addition to the ordinary allowance of milk, and to vary their diet by the use of curds and whey, rice which has been boiled to a pulp, barley, wheat, and oatmeal gruel, and a cup of corn-starch with vanilla or some other flavoring substance of a like character. As a result I very rarely see the marked ataxia which is so common a symptom in convalescence from typhoid fever. The patient's nutrition is so well preserved that he is but little more emaciated than many cases of acute pneumonia at the time of recovery. Secondary complications like furuncles and bed-sores are unknown, for by the use of a plentiful supply of food the patient's vital resistance is maintained to such a degree that simultaneous collateral infections do not take place. The average case of convalescent typhoid fever is a fair mark for any infection because it is half-starved.

Recognizing that typhoid fever is characterized by a deficient secretion of digestive juices, all these patients receive hydrochloric acid and pepsin when proteids are administered, and taka-diastase and pancreatin when carbohydrates are used. I have never seen any bad symptoms arise as the result of this plan, and I am quite sure that I have seen an immense amount of good follow. I am not friendly to the use of beef tea, which I believe acts as a first-rate culture medium and frequently increases tympanites and diarrhea, the stools becoming fetid under its use.

For many years I have been much dissatisfied with the various theories which have been advanced to explain all the good effects which follow the use of cold bathing in typhoid fever. Most of my auditors will remember that but a few years ago the good effects of cold plunging were supposed to depend chiefly upon the fact that by this means we were able to bring the temperature approximately to normal. Increasing experience has, I think, taught us that the mere reduction of the temperature is the least of the results which hydrotherapy brings about. We must believe, on the other hand, that the readjustment of the circulation or the reëstablishment of the normal circulatory equilibrium is the chief benefit derived from this method of treatment, and there can be no doubt, I think, that the great increase in the elimination of toxic materials in the urine after the cold bath depends upon this readjustment of the circulation and the increased rapidity with which toxic blood is taken to the kidneys where it can be purified. A number of years ago there appeared in the *Australasian Medical Gazette* a paper by one of the staff of the Brisbane Hospital in which he reported a large series of cases of typhoid fever treated not by the use of the cold bath but by the employment of the tepid bath—a method instituted at first because the climate was so hot that ice was difficult to obtain, and subsequently adhered to because the results which were obtained fully equaled and indeed surpassed those which were reached by the use of ice-cold water. In these baths, as well as in the cold baths of Brand, we all know that active friction is a factor of very great importance, aiding the dissipation of body heat, and the longer I study this matter the more convinced I am that active friction in these cases is an exceedingly important part of the treatment, not only because it aids in the dissipation of heat and readjusts the circulation, but also because it exerts upon the patient beneficial effects which follow the use of massage when we employ the rest cure in the treatment of neurasthenia.

Some months ago, when Dr. Mitchell read his first account of the early cases in which he instituted the rest cure, he took pains to point out that he failed dismally in good results from rest in bed and forced feeding until in addition he provided passive exercise in the form of massage.

Personally I have come to consider that the value of the modern method of treating typhoid fever by cold depends in great part upon the fact that when cold bathing is used, the typhoid fever patient, who is undoubtedly suffering from a form of toxemic neurasthenia, receives throughout his illness a form of rest cure which maintains strength and puts him in first-rate physical condition in much the same manner as we endeavor to do for nervous wrecks in the social world. In other words, I do not believe that the free use of cold water in itself is the chief factor for good in these cases, but that if we amply feed and thoroughly rub our patients, a great portion of the good comes from these measures. In other words, I would advocate the employment of the Weir Mitchell rest cure in the treatment of typhoid fever.

I have also been very much impressed with two additional facts in this connection. One is that equally good results can be obtained in typhoid fever if patients are properly sponged with friction instead of being plunged. The same fall of temperature, the same reaction, the same reddening of the skin without cyanosis and congestion, can be produced by sponging with friction. I have never seen a temperature which could not be reduced by proper sponging, or ice-rubbing, even better than by the plunge bath. The sponging possesses the additional advantage that the patient does not have to be moved from his bed, that the great muscles of the back can receive even more attention than the anterior portion of the body, thereby increasing the dissipation of heat very greatly and preventing creasing of the skin and the formation of bed-sores. For several years I have never plunged my patients, and have always sponged them. My experience is, however, that every new nurse that sponges for me has to be instructed in the proper use of friction, and in any instance in which the temperature fails to fall under this method I feel confident that the fault is in the way the nurse does the sponging and not in the method itself.

The second point is that many patients suffering from typhoid fever are profoundly toxemic when their temperature is considerebly below 102½°, the point at

which the cold plunge is usually considered wise. Such patients are not given the cold plunge for the very good reason that if they receive it their temperatures may become subnormal, and they may collapse. The toxemia is permitted to persist, because the temperature has not risen high enough. Under these circumstances I believe that we should resort to tepid baths. I feel convinced that I have repeatedly saved life by the use of tepid or even hot water used with sponging and friction in toxemic cases which were certainly too feeble to bear cold. By the use of hot or tepid water with friction, circulatory equilibrium can be re-established, toxemia diminished, and even the temperature reduced to normal.

The next point I wish to consider is the question of the administration of alcohol to typhoid fever patients. Before I fed these cases so well I used very much more alcohol than I use at present, and I was firmly convinced of the fact that it did these patients good. I still use it quite largely, but, with good feeding, I can get along with much less than formerly, probably because the patient burns up food products in the body instead of burning up alcohol.

Closely connected with this question of the administration of alcohol is that which deals with the manner in which it can do good in typhoid fever. It has been shown so conclusively by a host of scientific investigators that alcohol is not a true stimulant in the sense in which we employ that term in connection with drugs which increase the functional activity of various organs that we cannot ignore the fact that in the past our views concerning its mode of action were erroneous. On the other hand, the experience of a vast number of practitioners has been almost without exception in favor of the proper employment of this drug in typhoid fever, and surgeons innumerable are prepared to assert that iron, alcohol, and quinine are the best means of combating various forms of bacteremia, admitting, it may be, that they know not how they do good, but asserting vehemently that they are invaluable.

At the present time it would seem likely that we are standing on the threshold of therapeutic discoveries which make all previous ones seem insignificant. Ehrlich's theories in regard to antitoxic bodies, receptors, and haptophores have thrown a flood of light upon many physiological and pathological processes, and I believe are destined to show that many of our therapeutic measures which we have thought rested upon a scientific basis have been purely empirical, in the sense that we have been entirely ignorant of the manner in which their effects have been produced. In other words, as an illustration of this, in the past we have called alcohol a stimulant, thinking only of the circulation, the kidneys, and respiration. It is quite possible that it does not act as a stimulant upon these functions, but upon other functions which are of equal importance in the human body, and are connected with immunity and the ability of our bodies to resist infection. It would seem probable that certain drugs, such as those I have named, for example, may exert an influence upon the body by means of which the processes of artificial immunity are greatly increased. Recognizing the unsatisfactory state of our knowledge in regard to the employment of alcohol in various infections, it occurred to me that this drug might perhaps do good in typhoid and other fevers of an asthenic type associated with bacteremia by increasing the bacteriolytic power of the blood, and I therefore instituted a series of experiments which I reported at the meeting of the Association of American Physicians in Washington in May, 1903, and published in the THERAPEUTIC GAZETTE for May, 1903.

SOME OBSERVATIONS ANENT MALARIA, WITH SPECIAL REFERENCE TO THE DISEASE AS COMPLICATING ENTERIC FEVER.[1]

BY A. S. PENDLETON, M.D.,
Henderson, N. C.

The conclusions arrived at and set forth in this paper are the result of a careful revision and study of 943 cases of malaria of which complete notes were taken, and of conversation with medical men living in malarial districts who have a large experience with the disease.

Of the cases 12 were of the malignant type, with hemorrhages and subsequent jaundice, 97 estivo-autumnal remittent,

[1]Read before the North Carolina State Medical Society, May 25, 1904.

79 quotidian intermittent, and the remainder tertian intermittent. The apparent proportion would be misleading did I not add that as no record was kept of a great many cases of the tertian variety treated during the same period they are not included.

In the malignant cases the blood was found filled with molecular débris and disintegrating red blood cells, and contained numerous small organisms identical in appearance with those seen in the beginning of the estivo-autumnal type of the disease. The plasma was apparently slightly stained with hemoglobin. From the course taken by these cases, and according to the experience of men who have treated many similar ones, the danger in malignant malaria is practically never due to the loss of blood through hemorrhage, but to the toxins in the circulation causing an acute nephritis; death resulting from uremia. The fact that the physicians who obtain the best results in its treatment are those who pay most attention to the kidneys will strengthen the position here taken.

It is very unusual for the hemorrhage to threaten life. Almost invariably the amount of blood lost seems to bear no relation to the gravity of the attack. In one of the cases cited the hemorrhages were very profuse and continued throughout forty-eight hours, yet the patient recovered, though at times no radial pulse could be detected.

In another, the hemorrhages were limited to two, and they were both slight; yet on the third day there was complete suppression, the patient dying on the eighth from uremia, though all known means, including hypodermoclysis, were tried to get the kidneys to act.

The use of the decinormal salt solution by transfusion, hypodermoclysis, or enteroclysis has undoubtedly materially lowered the mortality, and should be used in every case, regardless of the amount of hemorrhage; its beneficent action being derived much more largely from its direct diuretic effect and from diluting the toxins in the circulation, and so preventing nephritis, than from replacing blood lost. Nausea with frequent retching and vomiting is almost always present during the first twenty-four hours, and it is a waste of time and energy to give anything by the mouth except calomel, champagne, a little water or cracked ice. A hypodermic of morphine is usually necessary for pain and nausea.

Quinine should be administered hypodermically, and as twenty to thirty grains per diem have been proven sufficient to destroy the organisms, the dose should be limited to that amount. The reason the immense doses of the drug which have been given have done no harm, or have apparently done good, is because only a very small proportion was given hypodermically, and that given *per os* was either vomited or swept through the alimentary tract by the accompanying calomel before there was time for absorption. Diuretics *per os* should be begun as soon as possible.

Nothing of interest was noticed in connection with the tertian and estivo-autumnal types except that the salicylate of quinine was better borne by the stomach than any other salt, that it controlled the headache and backache usually without the need for coal-tar products or morphine, and that a smaller dose of it was required than of the sulphate to destroy the parasites, fifteen to twenty grains per diem generally being sufficient.

As to the etiology of the disease, we are all agreed that it is caused by the presence in the blood of the malarial parasite, variously known as hemosporidia of malaria, plasmodium malariæ, etc., which have been very fully described by many of the authorities, but especially by Thayer, of Baltimore. Manson holds to the belief that the only course of infection is through the bite of the Anopheles mosquitoes, and his experiments would lead us to believe that his conclusion is the correct one; but we of the South, and especially those of us who live in the eastern section of North Carolina, have learned through experience that certain conditions certainly predispose to the extent of determining individual attacks, whether or not they are responsible for the infection. For instance, those who habitually drink impure water are peculiarly liable to the disease, while those who are careful to take nothing but pure water are notoriously free from attacks. The substitution of deep-drilled wells for shallow, open ones has greatly lessened malaria in certain districts. Those who are exposed to the heat of the noonday sun are more often attacked

than those who are not. In intensely malarial districts a paroxysm will often make its appearance after surgical operation or after labor, and one too that is shown to be malarial and not septic in origin by examination of the blood and the administration of quinine. These facts indicate the possibility of other sources of infection. On the other hand, the writer has found the organisms in the blood, though there were no symptoms indicating their presence, and the conditions just enumerated may act by simply lowering the vitality and resistive power of the individual to the extent of causing an attack when otherwise the parasites would have been destroyed without producing symptoms. That exposure to night air predisposes to the condition is explained by the fact that the Anopheles is essentially a night-hawk.

The number of cases is always increased in localities where excavations are being made, where the ditching and draining of swampy lands is being done, but there is less than usual during the summer following such drainage. Malaria is more prevalent in dry than in wet summers; this may be because stagnant water is required for the growth and development of the larvæ of the Anopheles, and oft-repeated rains destroy them.

Let us now consider malaria as a complication of typhoid. All authorities I believe admit the possibility of such a mixed infection, but declare it to be a very rare condition.

During the time when these observations were made the writer treated twenty-seven cases, which presented the following evidence of being caused by a mixed infection:

1. The plasmodium in one or another of its forms was present in the blood of all, so there was no doubt about the malaria.
2. Widal test positive in all.
3. The diazo-reaction was present in all.
4. Epistaxis in seventeen.
5. Rose-rash in twenty-one.
6. Intestinal hemorrhage in five.
7. Perforation of bowel with death, followed by a confirmatory post-mortem, in one.

As you will see I have taken only those cases in which the proof was practically indisputable, and when I add that the total number of typhoid fever cases, including these, treated during this time was thirty-nine, you will perhaps begin to believe with me that in markedly malarial sections the mixed infection is much more common than we have been taught to believe.

In these cases during the first few days of the attack the malarial symptoms were of such prominence as to mask those of the enteric; but after the first week, when sufficient quinine had been given, the clinical course was typically that of typhoid fever in character.

The usual history was as follows:

No prodromes, the disease being ushered in with a chill, accompanied by headache, backache, and a maximum temperature of from 104° to 105° F., sometimes reaching 106° F. The bowels were generally constipated, and the tongue pale, flabby, and heavily coated.

The urine usually showed a trace of albumin, and in some cases, particularly those in which the temperature was excessively high, an occasional blood cast was found. Examination of the blood on the afternoon of the second day revealed numerous malarial parasites.

From three to six hours after the chill the fever would begin to subside and the patient to sweat profusely. The temperature would almost or quite reach the normal by the morning of the second day, and rise again to about 100½° F. in the evening.

In about fifty per cent of cases observed there was a second chill with fever and sweat on the third day, regardless of the treatment instituted, but when fifteen to twenty grains of quinine was administered daily the third paroxysm never appeared. Discontinuing the quinine invariably meant a recurrence of the chill, and usually on the eighth day. Fifteen to twenty grains was found to be sufficient to control the malarial element, and seemed to have no deleterious effect on the typhoid.

The course of the disease after the third or fourth day was generally typically typhoid when the quinine was continuously administered.

In five cases there were one or more hemorrhages, and in one perforation followed by death of the patient. Another was complicated by bronchopneumonia in the third week, and the patient suc-

cumbed on the twenty-sixth day—making two deaths and twenty-five recoveries. It would seem therefore that the mortality is no greater than in uncomplicated typhoid fever.

The reappearance of the malaria when the quinine was discontinued was probably due to reinfection, as these patients were not protected.

VERTIGO.[1]

By Charles J. Aldrich, M.D., Cleveland, Ohio,
Professor of Mental and Nervous Diseases, College of Physicians and Surgeons, Cleveland; Neurologist to the Cleveland General Hospital and Dispensary; Neurologist to the City Hospital.

Vertigo is not a disease, it is only a symptom. But it is a symptom-expression of such widely varying pathological conditions as to be worthy of much consideration and thought.

Vertigo is derived from *vertere*, "to turn," and is a term commonly applied to a disturbance of equilibrium, that complex correlated result of several senses, and which we also call station. To this definition we may add the statement that equilibrium or station is the recognition and maintenance of the normal spatial relations of the body with the objects of its environment.

Authorities have long held that vertigo was subjective when the complainant experienced the sensation of reeling or spinning about when in fact his equilibrium was not actually disturbed.

Notwithstanding this definition of vertigo, which is given by all of the writers, it is self-evident that subjective vertigo does not, cannot exist. A man either has vertigo or has it not. If a vertigo is a disturbance of his equilibrium, it is manifestly impossible for him to have a vertigo without disturbance of equilibrium.

The phenomenon which has heretofore been described as subjective vertigo is a genuine delusion, and the patient is usually able to recognize its falsity. In this so-called subjective, or more properly delusional, form it appears to the patient that it is his corporal self that is moving; yet he is able to recognize the fact that the objects of his environment are stationary; and while these patients complain of a sense of giddiness, of reeling, and of whirling, they do neither, nor do they ever fall.

A logical consideration of these facts leads us to the inevitable conclusion that the so-called subjective vertigo is a delusion, possessing in truth all of the dignity of a real delusion. It is not a vertigo but a sense deception—a psychic imposture, and wholly due to a disordered consciousness.

In true vertigo, that which authors have heretofore denominated as objective, the subject actually staggers, reels, sometimes spins, and often falls. In this form of vertigo his spatial relations are really disturbed, and visible objects pass him in rapid procession, or whirl about him, or over, or under him—oftentimes in a fixed direction—and he staggers or falls in proportion to his inability to adapt himself to that which appears as rapid changes in his spatial relations.

As foreshadowed in the foregoing remarks, I believe that the division which has been formerly observed in speaking of vertigo as subjective and objective is both misleading and confusing, and not founded upon a true conception of the differences existing between the condition which is the result of the inharmonious action of the various senses, calculated to aid us in establishing and in maintaining our equipoise and our normal spatial relations with the objects of our environment, and a psychic vertigo which is evidently a subjective disturbance of consciousness, a psychical occurrence, in which a feeling or sensation of instability is foisted upon perception without such condition existing in fact. Of course there are many degrees of objective vertigo, some of which are so slight as to allow the subject to successfully overcome them and appear to possess a good station. To differentiate them from the delusion types is not difficult if the conditions of the various tests are well planned by the examiner.

Our knowledge of vertigoes allows us to resolve them into the following ten more or less well recognized clinical forms:

1. As a symptom of a disease or disturbance of the semicircular canals, the nerves of Cyon, or of the cerebellum; in

[1]An address given to the Ashtabula County Medical Society, at Ashtabula, Ohio, December, 1903.

short, a disturbance of the apparatus of equilibrium, whether destructive, irritative or functional—Ménière's disease.

2. As a manifestation of various diseases of the external and middle ear; tympanic irritation, polypi, hardened wax, etc.; changes in atmospheric pressure as experienced in ballooning or working under compressed air; affections of the Eustachian tube with consequent congestion and lack of ventilation of the tympanic cavity—tympanic or auditory vertigo.

3. As an indication of organic brain disease, such as severe concussion, abscess, brain tumor, brain syphilis, meningitis, multiple sclerosis, and general paralysis—irritative vertigo.

4. As an evidence of an incoördination of sensory impressions received by the brain through the organs of vision—ocular vertigo.

5. As a manifestation of disordered circulation of the brain, whether due to a functional interference with the normal supply of blood to its tissues, grave alterations in the pressure of the blood-stream itself, or to an actual organic affection of the vessel walls—vascular vertigo.

6. As a symptom of neurasthenia or other neuropsychosis—psychic vertigo.

7. As an accompaniment or an equivalent of epilepsy or migraine—equivalential vertigo.

8. As a result of tissue starvation, as in chlorosis and anemia, or following severe hemorrhage, shock, or syncope—vertigo of cerebral anemia.

9. The effect of intoxication and infections, lithemia, drugs, poisons, autointoxication, Gerlier's disease—toxic vertigo.

10. The outcome of reflex excitations of the mechanism of equilibrium (stomachic vertigo, laryngeal vertigo, uterine vertigo, etc.)—reflex vertigo.

It is not assumed that this classification is original, or perfect, or complete, but as a working formula it will be found to possess value, especially in aiding one to a diagnosis, without which one's treatment will be unscientific and likely ineffectual.

It is far from my intention to attempt a detailed discussion of the multitude of symptomatic vertigoes. An effort will be made, however, to touch upon each group in proportion to its relative importance and the actual experience which I have had with its numerous forms.

Labyrinthine Vertigo.—The vertigoes arising from various affections of the labyrinth possess great interest, and it is thought that some brief notes of cases observed will be useful to introduce us to a study of this well defined clinical group.

The following case was seen at the instance of Dr. W. G. Crile at the Cleveland General Hospital:

Mr. C., captain of a fishing tug, suffered a severe lacerated wound of the neck which became infected. He finally recovered and returned to work, but much weakened and far below his normal standard of rugged health. On the first few days of his return to his tug, and while directing some work, he was seen to suddenly spring into the air and spin about, from left to right, and fall to the deck in a partially unconscious condition, from which he soon passed into an acute maniacal condition. He fought and raved, and cursed and swore, requiring three or four strong men to restrain him. Among his ravings were several profane references to fearful noises in the right ear, and it was noticed that he did not appear to hear well on that side.

He had been in this condition about ten days when I first visited him. After as careful an examination as could be made under the circumstances, and a thoughtful consideration of the history, the opinion was given that he had suffered an embolism of the auditory artery, or one of the cochlear branches, and that his insanity was a cerebral irritation due to the shock, from which he would shortly recover, but would, in all likelihood, be deaf in that ear. Three days later he suddenly recovered his mind, and although slightly giddy soon regained his spatial sense, but was and has remained deaf in the right ear.

The following case represents a different type, and was referred to me by Dr. F. J. Morton:

C. C., male, white, aged fifty-two; good family history. He had typhoid fever at fifteen, this being his only severe illness. About a year ago he began to have a buzzing in the left ear, which has continued. The hearing of that ear has gradually disappeared, until he is now unable to hear the ticking of a watch. The other ear appears perfectly normal.

Six months ago, without apparent cause or warning, he had a giddy attack in which objects about him seemed to "turn upside down," and he was thrown violently to the ground. He did not lose consciousness, but was very sick at the stomach and vomited. In all he has suffered three of these attacks: in the first two he was thrown to the ground; in the last he did not go down, but came very close to it. Dr. Morton observed him in one of these seizures, and states that he was extremely pale. Between these severe vertigoes he has not suffered from giddiness in the head, neither has he suffered from headache following these attacks. He often experiences, however, a flash of heat extending over the face and head. The patient is a healthy looking man, with a coated tongue, evidently of a bilious habit. The heart and arteries seem to be normal. He has a slight lateral nystagmus; the disks, media, and musculature are normal. His reflexes are quick, but not pathologically so. This is undoubtedly an irritative type of Ménière's disease that is comparatively common, and from which he may entirely recover. I neglected to state that an aurist had examined his ears, and beyond the apparent deafness no ear disease was discovered.

From my case-book it would be possible to multiply these cases to a useless and tiresome extent. The apoplectic type, however, is more rare than the ordinary form commonly called degenerative.

Tympanic Vertigo.—The second variety, the tympanic form of vertigo, is not at all uncommon. It is usually associated with considerable tinnitus and some deafness. Many cases appeared after the epidemic of influenza, from which we are unhappily not yet free. You will recall cases of vertigo from irritation of the drum membranes from pressure either from polypi or hardened cerumen. Also you will undoubtedly recall severe cases of vertigo resulting from syringing the ear; and it is a well recognized fact that many a strong swimmer, by a sudden dash of water against the drum, has experienced a vertigo which was sufficient to overpower him and bring about his death by drowning.

Closure of the Eustachian tube by swelling, new growth, or cicatrization will also produce vertigo.

Those working in the new water tunnel in Cleveland have afforded some marked examples of vertigo. I recall the case of one Mr. R., who worked for long hours under a pressure of about thirty-five pounds in addition to the one atmosphere. When he came out from under the pressure he experienced a sensation as though his "head had been blown off," and he was observed by his fellow workmen to leap into the air, spin about, and fall unconscious. He developed no paralysis, and the affection was undoubtedly a vertigo due to the sudden change of air-pressure operating upon his aural structures.

Irritative Vertigo.—As an indication of organic brain disease, vertigo is often a symptom of much value. It is usually evidence of a lesion situated in the medulla or cerebellum in such a position as to interfere with the normal operation of the centers of equilibrium which are believed to be therein located.

Diseases of the cerebellum are especially liable to produce vertigo, but to be able to actually locate the position of the cerebellar lesion from the character of vertigo is not always possible. If, however, deafness occurs on one side associated with vertigo it can be said to possess localizing value, since examination of a large number of cases reveals the fact that such lesions are located upon the side of the deafness.

The following case possesses an interest apart from the evident cerebellar lesion, in that it was evidently a syphilitic affection of that part of the brain, which is indeed rare:

D. D., male, white, aged forty-two, engineer by occupation, was referred to me by Dr. M. Rosenwasser in 1898. He suffered a syphilitic infection twenty years ago, but had active signs of specific disease five years ago. One year ago he was suddenly attacked with sick stomach, giddy head, and blindness, which lasted about four hours. This disappeared, and excepting a slight dizziness and some headache he remained perfectly well for three months, when he suffered a repetition of the attack that lasted twenty-four hours, and was again accompanied by vomiting, dizziness, and blindness. The vomiting, in fact, extended over twenty-

four hours, and the blindness and dizziness remained for two weeks, during which time he was unable to lift his head from the bed because of his loss of station. After he was out of bed his giddiness continued and gave him the sensation of falling backward. He also discovered that he was unable to look upward, or quickly over his left shoulder; if he did he would fall. He also noticed that after this attack his right arm and leg were weak, and that the right hand felt swollen and asleep, and trembled. His eyesight was poor, and he had some diplopia. Since his attack he has been sick at the stomach, constipated, dizzy, irritable, and drowsy much of the time. His reflexes are exaggerated, his station is fairly good, except when he attempts to look up or turns his head for a quick look over his left shoulder, when he staggers and falls unless he is supported. There are no eye changes nor other localizing symptoms. He has some ringing in his ears and is slightly deaf in both. Believing it to be a case of specific disease of the cerebellum he was put on active specific treatment, and in three months was perfectly recovered, and has remained well up to the present time.

About fifteen years ago, in company with the late Dr. W. J. Scott, I observed a case of brain syphilis in a stonecutter, thirty-one years of age, in which headache, vomiting, optic neuritis, and a peculiar vertigo were all of the symptoms. His vertigo was peculiar in that it was present only when he attempted to lie on the right side. As soon as this posture was assumed the room and contents whirled about him and he became nauseated. Although specifics were pushed he died. Dr. N. Stone Scott made a post-mortem examination and found a gummatous growth hanging from the right middle cerebellar peduncle impinging upon the right acoustic striæ. The growth was so attached that the right lateral position probably caused it to press against the acoustic centers.

General paralysis, that product of syphilization and civilization which has increased with gigantic strides, especially in metropolitan life, may first manifest itself by an unaccountable vertigo. As a rule, however, it occurs in the later stages of paresis, in which the vertigo becomes frequent and characteristic.

Vertigo often appears as a vertiginous equivalent of the apoplectic attacks of the later stages of paresis, and like them is indicative of the progressive degenerative changes in the cortex of the brain incident to that disease.

Vertigo constitutes one of the most valuable premonitory symptoms of apoplexy. Some years ago, becoming interested in this subject, I followed up a series of eighty cases of hemiplegia in which seventy per cent had experienced vertiginous attacks, varying from ten days to six months, and often two years before the apoplexy. Indeed, vertigo occurring in one with degenerated arteries, and past the middle term of life, should be regarded as a prodromal sign of apoplexy and proper prophylactic measures taken to prevent that fell occurrence.

Brain syphilis often first manifests itself by vertigo—indeed, it may be for a long time the only symptom of the affection—and thus afford a most valuable hint for the institution of therapeutic measures, which will be successful in preventing gross syphilitic brain lesions. The following case is a very good illustration of a specific vertigo of great severity:

Mr. C., aged forty-two, iron-molder by occupation; good family history, and excepting specific infection twelve years ago he has never been ill. Since his secondaries were very light he received but little treatment. On the 14th of March, 1901, he began to complain of dizziness and had a vomiting spell, which was followed by a severe headache. The vomiting and headache ceased after a night's rest, but the dizziness continued. Although he attempted to work it was with the greatest difficulty, and he only stopped when told to go home by his foreman, who feared that he might receive injury in the shop. At first I regarded the case as one of stomachic vertigo and treated him accordingly, but without result. Considerable attention was also paid to the possibility of lithemia being the cause. A low diet, alkalines, and cathartics had no effect. His dizziness continued, and was even present when he was in bed. He complained bitterly of a sensation of being "forced through the bed," and feeling as if he were being "turned heels over head," as he expressed it. "Everything in the room seems to be coming my way, or

passing over my head." He was often deathly sick at the stomach, but did not vomit. There were no signs of ear affection, and his eyes appeared to be normal except a slight haziness of the disks.

At this time on close questioning he revealed to me his specific infection. He was immediately put upon large doses of iodide of potassium and inunctions of mercury, but before I could observe the effect he passed out of my hands into the care of the late Dr. Tuckerman, who was rather inclined to believe that the vertigo was due to malaria, since the malaria parasite had been demonstrated in his blood. Antimalarial treatment, however, gave him no relief, and I was again called to the case. The ophthalmoscope now revealed the presence of a beginning choked disk, and he stated that his headache had become far more severe than before. In consultation with Dr. C. F. Hoover and Dr. Tuckerman, we concluded that it was indeed a case of brain syphilis, and the case was thereafter treated jointly by Dr. Tuckerman and myself. The result was a complete recovery in the space of six weeks, although his vertigo had existed for a period of almost three months. This case is an eloquent example of a peculiar manifestation of specific brain disease before other signs of gross lesion have appeared, such as severe headache, optic neuritis, and paralysis. It is also interesting to know that this man has remained in perfect health since that time.

Ocular Vertigo.—It is practically agreed among ophthalmologists that ocular vertigo nearly always occurs as a result of weakness or paralysis of the eye muscles. In many cases an actual diplopia can be demonstrated. In the marked cases of double vision vertigo is less liable to occur than in the very slight cases. The diagnosis of ocular vertigo is at times difficult. The closing of one eye and a continuance of the vertigo does not exclude the eyes as a cause. A few cases are said to be due to errors of refraction. I am positive, however, that I have not observed a single case of ocular vertigo that was due to eye-strain. By eye-strain I mean the overuse of an imperfect eye.

Vascular Vertigo.—Disturbance of the circulation of the brain is a well known cause of vertigo. A simple example is that of a slight vertigo which we nearly all of us have suffered when quickly rising from a stooping posture, or sudden standing from recumbency.

Vertigoes attendant upon marked cases of arterial sclerosis are not infrequently met with, and are usually easily recognized because of the thickened, tortuous temporals, thickened radials, serpentine brachials, hypertrophied heart, with apex beat to the left, and an accentuated aortic second sound. There are cases, however, in which a high blood-pressure can only be positively determined by the hemadynamometer.

The following case, besides possessing unique features, is a splendid illustration of the value of the hemadynamometer in making a differential diagnosis in certain forms of vertigo. The case was seen with Dr. Robert Pollock, January 27, 1904.

Mrs. B., a widow, aged fifty-four years, gives a good personal and family history, with the exception of four brothers who died of pulmonary tuberculosis. In the early part of last summer she had one or two attacks of giddiness after her evening meal. On the 26th of November, 1904, she was attacked with a "dizzy head." At that time her head ached and she was sick at the stomach. It appears that she had gone to bed feeling as well as usual, and awoke from an unpleasant dream, when the dizziness and sickness at the stomach were manifested. She stated that objects passed about her from right to left. She had had no aural symptoms, but a little buzzing in the left ear. She suffered several similar vertigoes; one was accompanied by both diarrhea and nausea. No other attacks were accompanied by nausea but the last mentioned and her first attack. In addition to her vertigoes she has attacks of weakness and a numb feeling extending over the body, but they are not accompanied by dizziness. Nothing wrong can be determined in connection with her eyes. Dilating the pupils with belladonna and wearing dark glasses have had no effect upon her dizziness. She was recently glassed by Dr. Lauder, who found nothing except the alterations common to advancing years. The character of her vertigo is peculiar. She says that she has a sense of "whirling wheels in the head." There are, however, no noises in the ears except the slight buzzing in the left. There is now present a con-

stant dizziness of the head. During all this time her head has seemed to be clear, but when she would "sit up things would begin to come up to me."

On my first visit I learned that she had been in bed three weeks, and then had a continual sensation of floating, as if in a boat. A peculiar feature is that when she now closes her eyes it appears to her as if her body soars into the air, and then begins to glide through the air feet foremost. This gliding movement seems very swift, so swift that she dreads to open her eyes, because as soon as she does so, and notes the fixed objects about her, it brings a stop with such suddenness that she is seriously disturbed. In addition to this she has experienced some real optical delusions. They began first almost like a dream, but they are now very often present when she is awake, but with the eyes closed. These delusions consist of the impression that, when she has soared upward and begun to glide as described, she passes along the sides of great cliffs and mountains, from which she can gaze down into unfathomable chasms. These visions take on the appearance of beautiful mountain landscapes, wonderfully colored and constantly changing. These delusional journeys would be very pleasant were it not for the sense of insecurity and fear of falling which continually possesses her.

The patient is a thin, pale woman of more than ordinary mental possessions. She does not present any stigmata of hysteria or insanity, but probably is neurasthenic. Her reflexes are quick and she has a slight lateral nystagmus. The pupils are at present dilated by atropine, hence reaction cannot be tested; Dr. Pollock states, however, that their reactions are normal. Her disks are normal. She has no signs of motor or sensory paralysis. The apex of the heart is slightly to the left, and the aortic second sound is accentuated. The radials are not more palpable than you would expect at her age. Hearing is acute, but there is a slight buzzing in the right ear, which contains a plug of dry wax, the removal of which discloses a drum normal like its fellow. Notwithstanding the presence of this wax in the ear I did not believe that her vertigo was due to its presence. Its removal apparently had no effect whatever in bettering her condition.

Three days later I returned with the hemadynamometer and was surprised to find that her blood-pressure was almost one hundred and eighty. Two days later Dr. Pollock began the administration of full doses of nitrite of sodium. After the first dose she expressed herself as being more relieved than she had been in many weeks. The nitrite was pushed and measurements taken from time to time, which showed a gradual reduction of her blood-pressure to one hundred and fifty, at which time she was so much better that she got up and was about the house, although suffering to some extent from giddiness. She has now practically lost all of her disagreeable symptoms and is able to go down town shopping.

This high blood-pressure is so distinctly in contrast with the low blood-pressure of the apoplectic forms of labyrinthine disease that I cannot forego mentioning, very briefly, the details of an extremely interesting case of apoplectic labyrinthine vertigo, and one which had such remarkable optical hallucinations that I intend in the future to report it in full.

Mrs. M., a widow, aged fifty years; good personal and family history. She was attacked in October, 1903, by a violent vertigo. She awakened about four o'clock in the morning with intense nausea. When she attempted to get up she was thrown violently to the floor. Her daughter put her in bed, but she remained very pale and unconscious for a period of fifteen minutes. She lay in bed a month practically helpless; was slightly stupid, and suffered from intense vertigo. Five days following her attack she complained of bells ringing and swords clashing in the left side of the head, and afterward a roaring in her left ear. One side of the body was not weaker than the other, and she suffered from no pain in the head or stiffness of the neck. She found that she was barely able to hear on the left side the loud ticking of a clock held to that ear. The temporal arteries were cordy and convoluted, her radials thick; and Dr. C. E. Ford, who kindly took the blood-pressure for me, agreed that she undoubtedly had an arterial sclerosis, and he estimated from the condition of her arteries alone (and he has had much experience in taking blood-pressures) that the pressure was high. Former observation had convinced me

that all these types of vertigoes have low blood-pressure, and from that knowledge I predicted a low pressure. We were both astonished to find her blood-pressure to be a trifle above ninety.

The vertigo of the aged, which as a rule is due to atheromatous degeneration of the arteries, is undoubtedly produced by the closing of the terminal arteries of the brain, with consequent shrinking of the brain volume through actual starvation of its elements. This may be a natural process incident to senility, or a direct result of atheromatous deposits in the vessels.

Psychic Vertigo.—Vertigo as a symptom of neurasthenia or hysteria possesses considerable interest, especially since it is a form of vertigo which has heretofore been described as subjective, and to which in my introduction I have strenuously objected. The symptom is usually excited by examination, and especially while the patient is talking about it. There is really no disturbance of the equilibrium, and the patient recognizes the falsity of the delusion, as the following case clearly shows:

Mrs. W., aged forty-eight, married but childless, has been a healthy woman but nervous. Her nervousness appeared after a miscarriage which she had at twenty-seven. She passed the change of life without event. She gives an exceptionally good family history, and organically is a healthy woman. She still suffers from "flushes," and states that she is very dizzy at times and can hardly walk, and that she sometimes has a tendency to fall forward, at other times backward. Her hearing is good. She experiences no abnormal sounds in the head or ears, and her eyesight is unimpaired. When asked to walk she immediately states, "Oh, I can walk all right." She can stand with the eyes closed and toes together, and I have no difficulty to prove to her that her vertigo is a delusion.

Another form of psychic vertigo is very well illustrated by the following brief abstract of a case history:

Mrs. P., aged twenty-seven, is naturally of a nervous constitution, and has been rendered excessively nervous by long application to hard clerical work. Among a large number of neurasthenic complaints, such as palpitation of the heart, fainting, etc., she complains of giddiness and staggering, and also a sensation of being so light that she is hardly conscious of stepping upon anything. At times she has a sensation of stepping upward as if going up-stairs. This seems to be due to a delusional sense impression, as she expresses it, "of things coming toward her." After treatment these sensations entirely disappeared. There never was, however, any actual staggering or unsteady gait; the whole was a delusion pure and simple.

Vertigo is rarely complained of in hysteria; it may be present in hysteric hemiplegics, but is nearly always delusional.

Vertigo as an aura or an after-effect of an epileptic seizure is not infrequent. The so-called epileptic vertigoes are epilepsies in fact, whose principal manifestation is a vertigo, in which case it should be looked upon not so much as an equivalent but as a real epilepsy. I have recently observed a marked vertiginous equivalent of epilepsy which promptly disappeared under "salt starvation" and full doses of sodium bromide.

Very frequently those who suffer from migraine suffer from vertiginous attacks. I myself am a sufferer from migraine, and not infrequently have a migrainous equivalent taking the form of a vertigo, causing me some very disagreeable feelings for a little time. Dana and others have related a number of severe attacks of vertigo, almost an apoplectic or Ménière's symptom, which were vertiginous equivalents of migraine.

Toxic Vertigo.—The vertigo due to the effects of drugs and poisons is well known. The most common one, of course, is the overfrequent drifting against the bar.

The peculiar type of vertigo which Gerlier described as paralyzing vertigo is probably of toxemic origin. But few cases have been observed in other parts of the world than in the south of France and Switzerland. The affection usually appears abruptly, and occasionally the phenomena occur in paroxysms. The patient suddenly becomes dizzy, falls, has pain in the neck, ptosis, and a paralytic condition of the muscles, with some lassitude, but never attended by loss of consciousness. The attack usually passes off in a few minutes. The initial seizure is commonly followed by others which ap-

pear at intervals varying from a few hours to days, weeks, or months. In the interval the patient's health is usually good. The difficulty is said to be sometimes epidemic, and has been especially noted in the Cantons of Geneva. It appears chiefly during the hot weather. Herdsmen and those in agricultural pursuits are most frequently affected. Its pathology is unknown.

The vertigo of lithemia is comparatively common, and a knowledge of it possesses great practical importance, since it usually excites much fright and alarm, and is commonly rapidly relieved by treatment directed toward the gouty state.

While looking up material for this rather rambling discussion of vertigo I was astonished at the number of this variety which crowd my memory and case-book. Some of them presented very violent symptoms, others were light in effect and evanescent in character. The following case will illustrate the intimate association existing between a lithemic vertigo and arterial sclerosis:

Mr. G., aged fifty-two, was referred to me by Dr. John Nuss in January, 1902, for a severe and persistent vertigo which had disabled him so completely as to prevent him from following his occupation as a molder. I learned that he had been continually treated for a period of over three months at the hands of various physicians and specialists. Examination revealed a healthy organism, which had not been weakened by any severe illness. His ears and eyes were normal, his appetite and digestion good, and bowels regular. His temporal arteries were thickened, the radial cordy, and the blood tension high. The apex of the heart was nearly an inch to the left of the mammillary line, and the aortic second sound was accentuated. The area of cardiac dulness to the right was more than normal, but to the left it was great enough to positively demonstrate a hypertrophy of the left ventricle. No valvular lesion could be demonstrated. Although he had experienced some stiffness and soreness of the joints he has never actually suffered from rheumatic attacks, and while there was some enlargement of the joints of the fingers, yet the presence of Heberden's nodes could not be asserted. His vertigo was practically continuous; he reeled and staggered like a drunken man, and while he had never fallen, yet at times he had great difficulty in keeping his feet. He was immediately put upon alkalies, saline cathartics, salicylate of soda, and frequent doses of nitroglycerin. In a week's time he returned to work, and when last heard of, over three months ago, he had suffered no recurrence.

The following case was puzzling for a time:

Mr. A., an Englishman, aged forty-seven, and a merchant by occupation, was referred to me by Dr. C. B. Parker. He gives an excellent family history and a personal history of rugged health. He uses tobacco moderately, but no alcohol. About three weeks previous to his visit to me, and while in apparent good health and at work, he had a feeling of dizziness, and objects seemed to take on motion and hurry by him at a tremendous rate. In order to keep his equipoise he was compelled to seize his counter. The attack passed off in the course of a few minutes, but has been recurring once or twice a day ever since. He has never fallen, but has been sick at the stomach each time. He had coryza, and his Eustachian tubes were stopped, but the drums were inflated by Dr. Phelps. He now appears to be completely recovered from his cold; his hearing is perfectly normal, he has no noises in the ears, and can easily inflate his drums by Valsalva's method. His eyes appear normal, his reflexes normal; his stomach seems to be in good condition; his vessels and heart are apparently perfectly normal. His pupils were widely dilated by atropine as a measure of treatment which I have found beneficial in vertigoes of doubtful origin, and for several days he appeared much better. A return of the vertigo without evidence of its being anything but a vertigo of intoxication, probably put in motion by his aural difficulty, caused me immediately to put him on an active antilithemic treatment, which secured absolute and permanent relief in the course of ten days. This was in the spring of 1898, and I have positive knowledge that he has been perfectly well since that time.

I recall a case of gouty vertigo, one of the very first that I had the fortune to treat. The patient was a large, powerful man who had the reputation among his neighbors of being lazy, and since he was

the best fisherman in the whole country I am positive that he may have been at least indolent. This man was attacked by vertigo, and had gone the rounds among the older physicians in the small place in which I was then practicing, with no result other than an increased reputation for laziness. The patient came to me, and from his rather intelligent description I was satisfied that he had been thoroughly treated for his stomach and almost everything else but lithemic vertigo. Knowing that he possessed a good appetite and indulged it freely, it occurred to me that possibly his difficulty was indeed gout. I put him on colchicum, citrate of lithia, and citrate of potassium diluted to a great extent; a limited diet was also prescribed, and a blue mass pill each second night followed by a black draught, which was a very common combination in the malarial districts of Indiana. This treatment cured his vertigo and gave me all the free advertising that only a lazy man, but a grateful one, can furnish an ambitious young doctor.

Reflex Vertigo.—It seems to be fairly well established that vertigo can occur from the effect of a reflex excitation of the central mechanism of equilibrium. Stomachic vertigo, laryngeal vertigo, uterine vertigo, and in fact a kind of reflex vertigo, has been described and ascribed to each organ of the body, and while I do not want to be understood as denying the existence of reflex vertigo, still I am skeptical in regard to many cases which have been reported. I have little doubt that a better explanation will be forthcoming, which will explain less theoretically the causes of many vertigoes now regarded as reflex.

Laryngeal vertigo probably occupies the most unassailable position of any of the reflex vertigoes, but when we recall the fact that irritation of the larynx has the most remarkable effect upon the blood-pressure as demonstrated by Crile, we bring to the explanation of laryngeal vertigo other causes outside of nerve reaction alone. Perhaps the same criticism can be made in reference to other reflex vertigoes. I do not feel like assigning the rather common vertigoes associated with stomach difficulties to autointoxication alone, since we are all aware that very severe vertigoes appear in certain people whenever they have a copious and free evacuation of the bowels. I have a young physician friend who suffers attacks of vertigo so severe, whenever he has a free movement of the bowels, that he almost falls from the closet seat. This is undoubtedly due to a rapid dilatation of the enormous vascular area within the abdomen, thereby draining from the brain such a large quantity of blood as to produce a vertigo purely from cerebral anemia. That many cases of stomachic vertigo, however, are true examples of autointoxication the experiences of Bouchard are certainly confirmative.

A form of vertigo which has been classed as a reflex vertigo is met with in some people who immediately become dizzy and stagger whenever they ascend to a great height; this, however, must not be confounded with a psychic vertigo in which the equilibrium is not actually disturbed, and which is often accompanied by fears on the part of the afflicted person that he will be compelled to throw himself from the dizzy height. This is a true degenerative phobia and very similar to the giddy, confused, and excited feeling which other degenerative types of the neuropsychoses manifest while in a crowd or a large, open place. These cases belong to the delusional type, but occasionally some of them manifest a true vertigo which may be the result of the powerful action of the delusion upon the centers of equilibrium.

ALVEOLAR PYORRHEA: ITS CAUSE, SEQUELA, AND CURE.[1]

By D. D. Smith, D.D.S., M.D.

In a beguiling pamphlet recently sent out to the dental profession by a manufacturing concern may be found a labored attempt to present alveolar pyorrhea as a constitutional disease due to a so-called uric acid diathesis. This pamphlet, although signed by an M.D., is evidently from the pen of one wholly without experience. Having a meteoric surface glow, the article is well framed to mystify and mislead respecting the true origin and not less the treatment of the

[1]Read before the Philadelphia County Medical Society, April 27, 1904.

disorder. Names, facts, and inferences are speciously garbled and perverted, unmistakably in the interests of a commercial preparation recommended as a constitutional remedy.

WHAT TEACHINGS RESPECTING CONSTITUTIONAL CAUSES HAVE DONE.

We shall do well to remember that in constitutional disturbances pyorrhea is to be reckoned with as a *cause* of disease, but never as a *result*. The etiology of pyorrhea can no longer be dismissed by the theorist with the affirmation that "it is a disorder of constitutional origin;" for its manifestation near to or past middle life only; its universal location about the roots of natural teeth; its special association with teeth of dense structure having large, bell-shaped crowns practically exempt from decay; the complete immunity of all edentulous mouths; and more than all, the absolute cure without regard to constitutional conditions which attends the removal of the cause or the extraction of the teeth, all point with unerring precision to it as a trouble having positive and distinct local origin.

THE ASSIGNED CAUSES FOR PYORRHEA.

The *local* cause universally assigned for alveolar pyorrhea is deposits of calculi upon the teeth. Those pretending to find a so-called constitutional cause ascribe it to the "gouty diathesis" or to some "constitutional *vice*." These assigned causes are wholly inadequate to account for the manifestations of this depraved condition.

WHAT ACCURATE OBSERVATION REVEALS.

Accurate observations reveal the fact that deposits of calcareous matter (tartar) upon the teeth, while causing absorption of their supporting structures, seldom or never give rise to a condition of true pyorrhea. The teeth more frequently found enveloped in masses of salivary calculi are the lower incisors and cuspids and the superior first molars. Whilst these teeth may be loosened even to the point of exfoliation through absorption of the alveolus, due to increasing deposits of tartar, this condition is not alveolar pyorrhea. The development of pyorrhea in the mouth is wholly the result of local infection; an infection arising from the breath, from vitiated mouth secretions and excretions, and from chemical decomposition and decay of waste substances in the high temperature of the mouth. Toxins from these and other sources are constantly present in the mouth and becoming cemented to the teeth, chiefly by the mucous secretion, form the so-called bacterial placques, which are retained day after day, often year after year, becoming stagnant and offensive; they form the nuclei of most virulent infection.

It is common to both sexes, but rarely if ever found to originate in connection with devitalized teeth. It seldom manifests itself before middle life, and then much more commonly in mouths in which practically full and crowded dentures are found.

HEREDITARY INFLUENCE.

Heredity has no influence whatever in the development of the disorder. That it has an influence in determining the shape and general characteristics of the teeth is well known and readily conceded; but while certain shapes and characteristics of the teeth are favoring conditions, they are in no sense a cause of this trouble.

TEMPERAMENT AS A FACTOR.

Temperament as a factor in pyorrhea is very imperfectly understood. As an example of wholly erroneous views respecting it, a professor speaking recently upon this point declared that the disease prevails more generally in the sanguineous temperament. The actual condition is exactly the reverse of this. It is extremely doubtful if a mouth with the typical marks of the true sanguine temperament—teeth of yellowish hue, small rather than large, perfect in mold, shape, and structure, short and having little cervical constriction, regular in development, never unduly crowded, occlusion perfect—was ever the subject of pyorrhea. I have never seen one. *Per contra*, the nervous, bilious, and lymphatic temperaments, with all their compounds and admixtures, present formations and conditions of teeth and jaws which favor the retention of infection and the consequent development of pyorrhea. No classification of temperaments can possibly make the subject plain. A far better grouping can be made under the heading

LOCAL CONDITIONS.

There are certain local conditions that promote the development of pyorrhea, and these demand most careful study. They are, first, the *presence of natural teeth in the mouth* (pyorrhea is impossible without natural teeth); secondly, the shape, character, number, and placement of the teeth themselves; and thirdly, the condition of the crown surfaces and the character and properties of the fluid environment when the mouth is in repose. That the *presence* of natural teeth is necessary for the development of pyorrhea is manifest in the fact that it never appears in an edentulous mouth, even though the supposedly favoring constitutional factors, uric acid and gout, may be present.

The general character of the teeth, whether they are dense in structure with only a thin layer of cementum enveloping the roots—a condition necessitating limited and difficult circulation in this tissue—or whether they are softer in structure and possessed, as is usual in such cases, of a thicker cemental layer, thus permitting freer circulation in the cementum, with increased vital energy to oppose external encroachments, presents important local conditions favoring pyorrhea in the one case and opposing it in the other.

The anatomical formation of the teeth also, whether having large and irregular crowns with strongly marked necks, and crowded into small, misshapen arches, or whether the reverse of these conditions prevail, viz., teeth small or medium in size, crowns merging into roots without marked cervical constriction, and regularly set in well developed arches—these conditions form marked predisposing or prophylactic features in the development of pyorrhea.

The third and most important factor among the local conditions is the infection inevitably present on all exposed crown surfaces of the teeth, especially the proximal surfaces. Even when considerable care is taken of them, viscid, toxic matter quickly accumulates upon untreated teeth, and is retained day after day, becoming stagnant and fetid, especially in the more inaccessible places, as between them and along the gum margins. These stagnant accumulations act to obstruct circulation in the gums, cementum, and alveolus, and induce inflammation in all surrounding tissue. This infection on teeth is greatly intensified in virulence and activity by the high normal temperature of the mouth, as well as by toxic emanations from decaying tooth substances and decomposing food particles. These (and if there be any special local irritants they are included) are the more active auxiliaries in originating pyorrheatic conditions, the subjects of which are legion.

WHERE PYORRHEA BEGINS.

The inflammation of pyorrhea begins in the tissues at some portion of the cervix of the tooth, more commonly on the lingual or palatine aspect, or at some inaccessible point between the teeth, frequently between the larger molars.

In the anterior part of mouths which are the object of some care, the point of attack is usually at the angle on the right side of the lower jaw, at the interspace between the right cuspid and lateral, or it may occur one tooth farther back, between the cuspid and first bicuspid. The reason for this is found in the usually inefficient method of cleansing at this point. Using the right hand, the brush is passed over the incisors, then to the teeth upon the left side, whence it is turned to the right side of the mouth, leaving one interspace and usually one tooth untouched at the angle mentioned.

Not all teeth in any one mouth are ever the subject of pyorrhea at any one time. Strong, healthy teeth with living pulps are the special subjects of pyorrheatic attacks. Teeth which have been devitalized in comparatively young life, if the roots have been properly treated, are virtually, if not absolutely, immune. This is due to the fact that cemental structure is not solidified or changed in character or quantity after devitalization of the pulp and dentine, save as it may be increased in thickness by an external deposit.

SOME EVIDENCE THAT PYORRHEA IS A LOCAL INFECTION.

I have never witnessed, in any case, the loosening and destruction of an entire set of teeth due to pyorrhea. With the displacement and loss of a single pyorrheatic tooth (much more a considerable

number of such teeth) there is marked decrease in virulence of the infection as well as lessening in amount of the inflammatory exudates. Movement of the tooth is always outward away from the point of inflammation, as in effort to expel the irritant from the mouth. A tooth is never forced toward the center of the mouth, but always away from it, by the pyorrheatic inflammation. Rapid elongation, protrusion, or rotation of a tooth—movements at times attended with great force and considerable pain—indicate that the pericementum and cementum of the tooth are specially involved.

THE END TO WHICH REMEDIAL EFFORT SHOULD BE EFFECTED.

To characterize the destruction of tissue in pyorrhea as "molecular necrosis" may be well enough if it is understood that the inflammation arrests, partially or entirely, the nutrition of the parts. This is especially the case in the alveolus. It is the arrest of the nutrition process which is the real cause of the excretion of the tissues at the surface. There is no zone of dead tissue exfoliated as in true necrosis. It is rather a surface necrosis. That nutrition is partially if not entirely suspended in some cases is plainly evident from the stagnant circulation, the tumefaction, and purple color of the gums. The progress of the disease can only be arrested by the reinduction of normal nutrition. All remedial efforts should therefore be directed to the accomplishment of this end.

THE TEETH A CONVENIENCE RATHER THAN A NECESSITY IN MASTICATION.

When scientifically analyzed the office work of the human teeth in the digestive process will be found far less a necessity than has hitherto been supposed. In reality they play but an inconsequential part, and one easily substituted, in the preparation of foods for stomach digestion. This statement, contrary to ordinary conception and to all previous education, may seem at first an absurdity, but when seriously considered it will be made plain that while lack of mastication by the teeth interferes greatly with our convenience and pleasure, in no true sense can mastication be classed among the *necessities* to digestion. Foods are as perfectly prepared for the human stomach and all the digestive processes without the aid of teeth as with them. This fact stands out clear and most convincingly when we consider the sick, or when we look into the mouths of the old people of to-day. The sick and convalescent are nourished with prepared or predigested foods, and very many of the old people have edentulous mouths, *having regained general health after the loss of all teeth;* a goodly number are using artificial substitutes, which sustain about the same relation to good natural teeth that an artificial limb does to a natural one; very few have kept any considerable number of useful natural teeth to old age. In all these imperfect and inadequate conditions there is little recognition or complaint respecting inability of mastication. Good serviceable natural teeth coupled with vigorous general health in old age is an anomalous condition, while the reverse of this—few or no natural teeth and general good health—is the rule of life. Extensive grinding tooth surface is not a requisite for successful mastication, especially for cooked foods; the urgent demand should be rather for the free and comfortable use of the organs of the mouth, including such teeth as may be made aseptic and serviceable. The one requisite for avoidance of chronic digestive and other complaints is a mouth with teeth perpetually void of septic infection; hence the loss of septic teeth is by no means an unmixed evil.

PYORRHEA A CAUSE AND NOT A RESULT.

Alveolar pyorrhea, with its necessary history of antecedent, long-continued septic mouth conditions, is not a result, but the unimpeachable *cause* of many serious systemic diseases, the etiology of which is not only unknown but wholly unsuspected. Its diverse local manifestations, as the displacement of the teeth, the turning of them in their sockets, the formation of pus pockets beside the roots, the loosening of the teeth and their final exfoliation, are but minor sequelæ in comparison with the constitutional manifestations seen in the slow chronic pyemic effects.

If the effects of pyorrhea were confined to its ravages in the tissues of the mouth —the wasting of the alveolus and the exfoliation of teeth—it would be of in-

considerable importance; but the pernicious emanations from twenty or more square inches of infected tooth surface, carried in inhalation directly into the circulation through the lungs, and this augmented by the perpetual ingestion of masses of mucoid toxins—pus and other pyogenic products of the disorder—develop constitutional conditions of most serious import.

THE GRAVITY OF PYORRHEA NOT RECOGNIZED.

The gravity of states and conditions resulting from pyorrhea in the mouth has not yet been comprehended. If better understood, it would no longer be treated with comparative indifference as at present; on the contrary, it would awaken a feeling akin to alarm. As yet no comprehensive measures have been suggested by either medicine or dentistry to allay its symptoms or avert its consequences, and both professions stand in its presence to-day pitifully helpless.

HOW PYORRHEA DIFFERS FROM OTHER INFLAMMATIONS.

The inflammation of alveolar pyorrhea differs from inflammations and disease conditions in other parts, in that the septic products are of necessity discharged directly into the mouth, whence they inevitably pass into the digestive tract.

Clinical observation shows the confluence of alveolar pyorrhea with rheumatism or gout to be infrequent, and if associated at all it is as cause and effect—pyorrhea the cause and rheumatism or gout the effect; a condition exactly the reverse of the "gouty diathesis" theory.

The conjunction of pyorrhea and renal complications is far more common and serious. Uremia is a usual result of pyorrhea, due in greater part to the perpetual ingestion of pus and other effete inflammatory products, which are constantly being disengaged in the mouth, where they are mixed with foods and drinks, and thus inevitably washed into the stomach. And here again the relation is cause and effect—pyorrhea the cause, renal complications, more commonly diabetes, the result. This has been repeatedly and indisputably proven through cure of the pyorrhea curing the diabetic condition.

WHERE CAUSE FIRST APPEARS.

This infection appeals for recognition first of all in septic states of the breath. Poisonous deposits upon the teeth due to toxicity of the breath are a constant menace, and principal factors in the incitement of the disorder. Although in the aggregate such deposits may be meager in quantity, they are exceedingly virulent and violently irritative to surrounding tissues; they are rapidly augmented by alluvium from vitiated salivary and mucous secretions, and from septic excretions, and not less by deleterious products from the necrotic condition of the alveolus and the perpetually irritated and inflamed gum margins at the necks of the teeth.

(Examples of breath infection appear in the surface discoloration of gold plates, gold and amalgam fillings, as well as in accumulations on the teeth.)

A DISCOVERY DEMONSTRATED.

It is matter for earnest felicitation that offensive breaths, a result generally of neglected mouths, filthy conditions of the teeth, and repulsive mucoid oral fluids, are wholly preventable and surely curable when they exist.

TREATMENT.

The cause of pyorrhea being a local irritant, whether that irritant be the presence of the tooth itself or an accumulated infection on the tooth, the beginning of treatment should always be directed to the removal of the cause. Not all teeth that have been loosened through pyorrheatic infection can be redeemed and made firm, comfortable, and useful, for when the disease has progressed to necrosis which involves the alveolus and pericementum, the entire circumference of the tooth and the osseous structures about the root or roots having become much absorbed—alveolar tissue once absorbed is never reproduced—immediate extraction is the proper treatment; or, if through development of a pericemental abscess, as not infrequently occurs in long-standing cases of pyorrhea, especially in connection with the molars, upper or lower, removal of the tooth is the one and only remedy.

Just here sharp distinction should be drawn between the ordinary apical alveo-

lar abscess and the more occult and uncommon pericemental abscess. They are entirely unlike in character, in development, in prognosis, and in mode of treatment. The former has been known and treated for years; the latter is of recent discovery, and is comparatively unknown. It was first differentiated by the author in 1897, and full description of it embodied in an article which was published in the August number of the *Dental Cosmos* of that year, under the title "Pericemental Abscess." The closing paragraph of the article is as follows: "The prognosis of pericemental abscess is always unfavorable; have never been able to afford permanent nor positive relief. The only remedy—extraction of the tooth." It would be a great gain to the profession if the conditions which lead to the development of pericemental abscess were more studied and better understood.

It should be the unvarying rule in the treatment of pyorrhea to speedily rid the mouth of all teeth which cannot be made permanently comfortable and useful. Teeth, especially molars, suffering from much alveolar absorption, if they be without natural occlusive antagonism, or any that can be rotated in their sockets, even though such movement be but slight, can never be made to retighten; their retention is a source of perpetual discomfort, a hindrance to mastication, and a positive menace to the health of the mouth. In view, therefore, of the utter inutilty of such teeth, any attempt to retain them is a matter of sentiment alone; every other consideration demands their immediate removal.

Having extracted such teeth as cannot be made serviceable and comfortable, effort should be directed to the removal of all infection of whatever kind from all the remaining teeth. This infection may consist of masses of calcic concretions, coatings of stagnant inspissations, accumulations of septic matter on the exposed surfaces of crowns and roots, between the teeth, in pyorrheatic pockets, or in the many concealed nooks, crannies, and irregularities found in connection with the teeth.

Dentistry affecting to see pyorrhea originate in some occult and unknown constitutional cause has wholly failed to perceive or recognize the power of septic irritants found upon the surfaces of all untreated teeth. As there is no agency more surely destructive of the teeth themselves, nor one more provocative of general systemic disturbance, than the surface infection on them, so there is no more important operation, neither a more difficult process pertaining to the teeth, than the complete and successful removal of pyorrheatic infection. Even when attempted at all, it is an operation performed with such laxity and indifference as to render it of little value.

Successful treatment for pyorrhea lies in the fidelity with which the toxic irritative matter is removed from the surfaces of the teeth, and rational after-treatment maintained. Constitutional remedies are wholly without avail except as cathartics, diuretics, or sudorifics they may facilitate the expulsion of poisons already absorbed. Scraping of alveolar margins, removal of vital bone, massaging of the gums, and various other impractical modes of treatment have been suggested, but none of them indicate any true appreciation of the pathological conditions involved. If necrosed bone is present, which is seldom the case, it is to be removed; beyond this the less disturbance to the tissues involved in removal of the infection, the better the results.

All treatment should be such as surgery would institute for any wounded, abraded, or excised surface in other parts, the difference being in the character of the tissues with which we are dealing and in their environmental surroundings.

There is no organ or tissue in the system to which a tooth, with its anatomical and physiological complexities, can be logically compared. If relieved of infection and restored to healthful condition, being fixed in the oral cavity, the teeth are at once replunged into an adverse environment and resubjected to adverse influences.

What, then, can be done by medical interference? Practically nothing. It cannot be made too emphatic that the treatment consists in frequent and forcible change of environment—a change more mechanical than medicinal in all that pertains to the teeth, and to all mouth conditions. Every effort should be directed to reëstablish healthful nutrition, which has been interrupted, if not

wholly arrested, in the surrounding alveolus, pericementum, and gums. No irritative toxins from the breath, from mouth fluids, offensive food particles, or from other sources should be allowed on the crowns, at the necks of the teeth, or in any pyorrhea pockets. Every concealed recess and nook should be reached and carefully cleansed of all accumulations with suitable instruments; and this followed by the polishing of all exposed surfaces, including pockets, recesses, and depressions, between the teeth, at the gum margins, or wherever infection may be found upon the teeth. This can be effected by hand methods only. All wheels, brushes, or other revolving instruments driven by power, should be wholly discarded. Specially shaped wood points—orange-wood is to be preferred—secured in suitable holders (porte polishers) should be used for this purpose. With these all parts of the mouth and all surfaces of the teeth can be reached and operated upon. The best polishing material is a fine pumice-stone. The dry powder can be taken up and carried to place on the wood points, previously shaped and freshly dipped in water for this purpose. Free application of the pumice-stone, and vigorous use of the wood points, are the most efficient agents known for removing infection from the teeth, and not less for placing them in the most favorable condition to avoid further deposits. This treatment should be repeated every forty-eight to seventy-two hours at the beginning, and continued until there are evident indications of abatement of the inflammatory condition and the closing of the pus pockets, when the intervals of treatment may be gradually lengthened until the limit of about one month is reached.

Every mouth with pyorrheatic tendency should be rigidly subjected to this mechanical treatment at the hands of an expert operator, for relief from the inevitable recurrence of infectious accumulations on and about the natural teeth. This treatment should be supplemented by *local* medication only. Internal remedies are not indicated except as tonics, or in special cases. Perhaps there is no better antiphlogistic or germicide for external use—and the mouth is an external cavity—than that rather disagreeable preparation known as phenol-sodique. It can be used *ad libitum* in the mouth, and with great benefit, after each treatment. I have found it most efficacious applied to the gums on lint or bibulous paper.

After the second or third mechanical treatment the gums about the pyorrhea pockets, and at the points between the teeth where there is greatest eversion of the festoons, should be touched regularly with deliquesced zinc chloride. The handling of this preparation should always be upon wood points. A small stick with point shaped to reach the part may be dipped in the solution and applied as desired. It acts as a stimulant to the nutritional process. Tincture of iodine applied to the gums over a pyorrheatic cavity or tooth is a most valuable adjunct in the stimulation of healthful nutrition.

Results from the treatment as outlined have proven a source of astonishment, and not less of gratification, to many who have interestedly witnessed them. Long-standing cases of pyorrhea, regarded as incurable and practically abandoned by the "constitutional cause" theorists, have readily yielded to this treatment and been cured in from six to twelve months.

SERUMAL DEPOSITS.

Serumal deposits in pyorrheatic pockets are often difficult of diagnosis, and more difficult to remove. These deposits differ greatly in character and manner of formation from the salivary incrustations found upon the necks of teeth at the gum margins. They consist, for the most part, of smooth, hard masses of calcic matter, deposited from the stagnant fluids in the pyorrheatic pockets, cemented to the root in some irregular formation or inaccessible position, on lower teeth especially. They are not the occasion of marked inflammatory action, although the infectious matter is commonly deep-seated. They create pockets beside the roots, in which deposits accumulate until the alveolus separates from the root throughout its whole extent. In many instances the presence of these deposits can only be determined by the thickened condition of the overlying gum tissue—a characteristic of this infection—by the continued pus discharge under pressure, and by the persistent movement of the tooth, often attended with great

force, in a direction opposite the accumulation. Serumal deposits destroy the life of the cementum and pericementum, and when these tissues have once separated, even though the deposits may have been perfectly removed, the vital union is never reëstablished. For this reason extraction of the tooth is frequently the only remedy.

NOTE ON THE USE OF SODIUM CHLORIDE AFTER AN APPLICATION OF SILVER NITRATE.

By Walter R. Griess, M.D.,
Cincinnati, O.

Although silver nitrate remains our standard remedy in cases of chronic anterior and posterior urethritis, it is not free from all objectionable features. Other preparations of silver have recently been put on the market to overcome these objections, and they have succeeded admirably, but not without jeopardizing to some extent the excellent action of silver as we see it in the nitrate.

The use of a solution of sodium chloride after the application of silver nitrate to any part of the urethra has shown itself in my hands to be of great value. This simple method is reported not with any idea of originality, for it has long been used by ophthalmologists whenever silver nitrate was applied to the conjunctiva, with the idea of having the sodium chloride act on any silver salt which might be in excess. Its use in genito-urinary surgery certainly is not general, nor can an instance of its employment be recalled.

The indications and reasons for the employment of sodium chloride after the application of silver nitrate are:

1. The silver salt can be used with greater comfort to the patient, as all excess silver is precipitated. (No bad results need be feared from the resulting precipitate.)

2. The effect that we desire from silver nitrate is accomplished quickly, therefore an excess should not remain in the urethra, as it not only causes unnecessary pain, but actual harm.

3. The caustic effect of the silver salt is eliminated to a great extent.

4. The stronger per cent solutions of the silver salt which are often necessary can be used, for we need fear no overaction nor caustic effect.

5. The application can be made more general. We need not fear the action of an excess on any of the healthy tissue.

6. Clinical evidence shows that this method of application yields excellent results.

The reasons for better clinical results are certainly self-evident when we consider some of the above indications—*i.e.*, that the proper per cent solutions to really do good can be used.

The application of the solution of sodium chloride should be in a manner the same as was employed when the silver was injected, by means of a deep urethra syringe (Keyes-Ultzmann). Enough time should elapse after the application to allow the operator to remove the syringe, wash it out, and then proceed as he did with the first injection.

SEPSIS AND ASEPSIS IN INTRANASAL SURGERY.[1]

By Joseph S. Gibb, M.D.,
Philadelphia.

The triumphs of the abdominal surgeon in these days of antiseptic and aseptic surgery have stimulated all lines of special surgical work, and the modern rhinologist naturally endeavors to emulate him.

So important was the subject of intranasal preparation for operation considered that it occupied a very large portion of the time of two famous scientific medical bodies during the last year, namely, the German Otological Society, May, 1903, and the London Laryngological Society, November of the same year.

Men whose names are household words in the domain of rhinology and otology freely participated in the discussion.

We naturally look to the bacteriologist to start us in the right direction in matters where germs play so important a rôle. Unfortunately here at the threshold we are met by a conflict of opinion

[1]Read at the meeting of the Section of Otology and Laryngology, College of Physicians, Philadelphia, April 20, 1904.

which to the ordinary mind is confusing. One group of observers tell us that the nasal mucous membrane is not a good soil for the development of pathogenic bacteria, and that few are found there. Another group say that all sorts of pathogenic bacteria are found in the nasal chambers.

One point upon which all agree is the preponderance of bacteria in the vestibule of the nose and around the nares.

Clinical experience has long since taught the rhinologist the comparative immunity of the nasal chambers to septic attacks. It is not too strong a statement to make that fewer instances of sepsis occur in intranasal operations than in any other locality of the body. For many years prior to the introduction of the modern antiseptic methods, many harsh intranasal surgical measures were employed, and the instances of sepsis were very few. So true is this that the older rhinologists came to regard the nasal chambers as aseptic.

It is fortunate for the rhinologist that septic attacks are infrequent after intranasal operations. For if it became necessary to render the nasal chamber sterile and to maintain it in that state during the entire reparative period, it would tax his ingenuity to the utmost. In order to accomplish this result, he must be assured that every crevice and sinuosity of the turbinal tissue, and all the accessory sinuses communicating with the nasal chambers, the postnasal space, the Eustachian tubes, etc., are brought in contact, and remain so for a sufficiently long time, with an antiseptic powerful enough to render innocuous all bacteria present.

While the difficulty of obtaining a thoroughly aseptic chamber by the technique of the general surgeon must be patent to all, it *is* possible to employ the usual careful technique of the hands of the operator, the instruments, gauze, sponges, etc., so that no new and perhaps harmful organism is introduced.

Therefore in the more important intranasal operations careful preparation of the surgeon's hands, sterilization of instruments, and the use of sterile cotton, gauze, etc., is indicated. Aside from cleaning of the mucous membrane of crusts, pus, and inspissated mucus, no other preparation of the field of operation is necessary, and may indeed prove meddlesome.

Krebs in Germany and Sir Felix Semon in England, in recent discussions on this subject, speak in no uncertain tones of the futility of elaborate intranasal preparation for operation.

In the preparation of a paper making a comparison of several operations for the correction of deviated septa I have recorded one hundred cases in which more or less extensive surgical work was done. In some of these especial care was taken that the hands, instruments, etc., were carefully prepared immediately preceding the operation. In the greater number, however, the instruments received no more care than a careful surgeon gives to his instruments. In other words, they had been sterilized, carefully put away, and at the time of operation placed in an antiseptic solution. No separate record has been kept of those which were specially prepared and those not prepared, but in a general way I am able to separate them, and so far as these few cases show am unable to see any difference in the progress of the cases or to note the occurrence of septic manifestation in one group over the other.

In these one hundred cases there were four in which sepsis in a more or less severe form was noted. Two of these cases were in private practice, in which special care was taken of every detail of asepsis; the other two were in hospital practice, in which ordinary but no special care was taken. In three of these cases careful investigation revealed conditions which may have precipitated the septic attack; in one case it was not possible to ascertain even a probable cause.

One patient was seized with a severe influenzal attack, which was then prevailing in epidemic form, immediately after the operation, and therefore did not receive the careful after-treatment as would otherwise have been the case.

A second case, immediately after a prolonged and difficult operation involving the correction of a badly deviated septum and dislocation of the columnar cartilage, was foolish enough to take a long automobile ride on a warm and very dusty day. The following day he had a chill and passed through a very sharp septic attack.

The third case left the hospital, despite advice to the contrary, after a very severe septum operation and did not report for one week. He returned with the statement that he had been quite sick with "chills and fever." It was not difficult to diagnose his condition, as both nasal chambers were filled with pus. In the interval of one week, during which he was wearing a septal splint, he was absolutely without any form of nasal treatment.

Here, therefore, are four cases of sepsis in a series of one hundred cases, in three of which, at least, conditions existed entirely outside of the operation which might have been responsible for the septic attack.

Sepsis following intranasal operations in nearly every case, in my experience, first manifested itself by a sharp attack of lacunar tonsillitis, sometimes with an accompanying pharyngitis. The tonsils present an appearance similar to that so frequently observed in the more severe forms of follicular tonsillitis. Constitutional symptoms are present, as is the case in follicular tonsillitis from other causes. The mucous membrane in the nasal chambers assumes a vivid red hue, and the edges of the wound (in those cases in which the septum is incised) show a disinclination to heal. Pus soon appears, and the discharges are offensive and excoriate the alæ and upper lip. In a few cases acute otitis media develops.

So far as my observation goes no case of infection and suppuration of the accessory sinuses has occurred in the septic cases, and this seems all the more remarkable from the fact that other forms of infection, notably influenza, are very prone to involve these sinuses.

However, this may be a mere personal experience, and that of others may be to the contrary.

In my experience septic attacks following nasal operations as a rule have been mild, subsiding usually within a week, and not greatly jeopardizing the result of the operation. In two cases, however, the attacks were sharper, of longer duration, attended by high fever and evidence of general sepsis, subsiding, however, after a time with no more serious results than a perforation of the septum.

While it is the rule that intranasal operations are rarely attended by septic complications, and that when sepsis occurs it is usually mild in character, still, as with every other disease in the calendar, there *is* a mortality. From time to time we read of fatal cases.

For twenty-four years I have done all sorts of intranasal operations, and until this last winter presented a clean sheet as to mortality, but then a case occurred which terminated fatally, in which the primal cause was an intranasal operation.

This misfortune may come to any one of us and at any time, and it may therefore not be amiss to report the case here somewhat in detail.

A vigorous, healthy looking young man presented himself at the clinic of the Episcopal Hospital with a well marked deviation of the septum which he was exceedingly anxious to have corrected. The operation was done under cocaine anesthesia. The septum was corrected by inserting a saw, immediately below the most prominent portion of the deviation, and sawing in an upward and inclined direction through to the other nostril, then pushing the deviated portion through this incision and retaining it in its corrected position by means of a Mayer splint. There was considerable shock following the operation, though no unusual hemorrhage occurred, and in consequence, though contrary to the usual custom, the patient was advised to remain in the hospital, which he did. The next day he left the hospital, the resident physician reporting his condition good. According to directions the second day after the operation the patient called at the office of an assistant; the tube was removed and cleansed, and the nasal chambers were also well cleansed and the tube replaced. At this time his condition was reported to me as good. He was not seen again either by myself or any member of my staff, notwithstanding explicit directions were given him to report at the hospital, until the seventh day after the operation, at which time my assistant was sent for to see him at his home. He was then in a septic condition, showing some evidence of meningeal irritation. His condition rapidly grew worse, he had hyperpyrexia, maniacal delirium, coma, and death on the eighth day after the operation. These symptoms, as detailed to me by my assistant, were strongly suggestive of septic meningitis. No

autopsy was permitted, so that the true cause of death must remain in doubt.

It is a matter of deep regret to me that through some unfortunate misunderstanding I was not permited to see this case after the day of the operation.

What part an imperfect technique played in this unfortunate result, or how much may be attributed to contributory negligence on the part of the patient, must forever remain in doubt.

From this very brief and imperfect presentation of a very important subject the following conclusions are deduced and offered for your consideration:

1. In intranasal operations, other than careful cleansing of the mucous membrane to free it of crusts, pus, inspissated mucus, and foreign maters, no especial antiseptic precautions are necessary.

2. Careful antiseptic preparation of the hands of the surgeon, the instruments, gauze, cotton, etc., is desirable.

3. Sepsis is not the rule after intranasal operations, and when it does occur is usually mild and transient, but it may be rapid, severe, and grave.

4. Nasal sepsis is manifested by follicular tonsillitis, inflammatory changes in the nasal chambers and especially in the wound, and in some cases acute otitis media.

THE TREATMENT OF HAY-FEVER

E. Fick (*Therapeutische Monatshefte*, April, 1904) deals with two methods of treating hay-fever: first, by means of Dunbar's antitoxin, and secondly, by his own method by employing aristol. Dunbar's treatment is based on the assumption that all hay-fever is due to the effect of the toxins of grass pollen. The author considers that Dunbar starts on a false premise. His experiments with pollen introduced into the nose of persons and producing attacks of hay-fever in those who had had this disease before, but not in others, are open to criticism, since the amount of pollen introduced was enormous as compared with the number of pollen which can be gathered in the air under the most favorable circumstances. Next Dunbar refers the eye symptoms to the direct action of the pollen on the conjunctiva. Mohr has recently proved that by protecting the nose by means of a fine filter the attacks keep off altogether and no eye symptoms take place. It therefore follows that some other cause must act in producing the eye symptoms. Our experience teaches us that other things besides grass pollen can produce hay-fever. For example, some people get an attack of this malady as soon as they come into contact with the blossoms of the lime tree, or of roses, while the so-called autumnal fever is generally accepted as being due to the blossoms of the *Artemisia Absinthium*. Fick considers that the antitoxin which, according to Dunbar, produces a short-lived immunity does not and cannot have any action at all.

In the second part of his paper he deals with his theory of the etiology of hay-fever. To start with, the patient is always neurasthenic. The attacks themselves are directly caused by the action of some agent, of which grass pollen is the most common, but by no means the only one. The nasal symptoms are the direct effects, and the eye symptoms are reflex symptoms. He goes on to give his reasons for denying that the nasal symptoms are due to vasomotor disturbances, while he tries to show that irritation of the nerve endings of the trigeminal causes a hypersecretion. The hypersecretion in the case of hay-fever is localized in the antrum of Highmore, and the fluid finds its way into the middle nasal fossa naturally. He states that he has found in aristol a means of curing all forms of nervous coryza, including hay-fever, when it is applied locally to the affected part. He is able to pass a cannula, which is very thin and curved in correspondence to the lower turbinated bone, into the maxillary antrum in about 95 per cent of all cases. Through this cannula he blows the aristol powder into the antrum, and finds that, as a rule, this need only be done six or seven times to produce a complete effect. By way of illustration he appends a number of cases which have been treated successfully in this way. At first he applies the powder every day for three days, after which time the attacks become much less frequent and milder, and often stop altogether. When they recur he again repeats the insufflation.—*British Medical Journal*, June 11, 1904.

The Therapeutic Gazette

EDITED BY
H. A. HARE, M.D.,
GENERAL THERAPEUTICS,
AND
EDWARD MARTIN, M.D.,
SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Price to Foreign Subscribers direct (postage included), $2.50 (10 shillings). English postage-stamps received on remittances.

Editorial communications should be addressed Northwest Corner Eighteenth and Spruce Streets, Philadelphia. Articles intended for the Original Department of the GAZETTE will be accepted only with the understanding that they are contributed to it exclusively.

Authors will receive reprints in pamphlet form, without charge, providing the request for them be written on the articles sent.

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Publisher The Therapeutic Gazette,
Box 484. DETROIT, MICH.

Leading Articles.

PICROTOXIN AND "KNOCK-OUT DROPS."

From time to time physicians in active practice are called upon to treat cases of sudden unconsciousness developing during or subsequent to an alcoholic debauch. In the majority of instances this condition is met with amongst the lower classes, and is probably due to the use of a large quantity of impure whiskey. It is, however, of very great interest to note that a certain proportion of these cases are not due to the effects of alcohol alone, but have their origin in the introduction into the alcoholic beverage of some powerful nervous depressant. In some instances opium or morphine has been employed. Much more commonly chloral is used, and it is evident from an article which appears in the June issue of the *St. Paul Medical Journal* by Carel, of the University of Minnesota, that, in some portions of this country at least, picrotoxin is used for the purpose of stupefying individuals who with their pockets filled with newly received wages proceed to spend a part of it in alcoholic excess. Carel mentions three cases of poisoning. One of these was an attorney who, being opposed to liquor dealers, occasionally took a drink in a saloon in order to obtain evidence. The barkeeper introduced into the liquor what he called "extract of hazelnut," but in reality cocculus indicus, in order "to improve its flavor." In another instance a physician received the so-called "extract of hazelnuts." In still another a business man received the same drug; and Carel informs us that the so-called "lumberjacks," or men who work in lumber camps during the winter, are frequently doped in this manner when they come to the city to spend their earnings. He also points out that if *Cocculus Indicus,* from which picrotoxin is derived, is placed in whiskey, it very closely resembles the general appearance of a hazelnut kernel in the same liquid.

The symptoms produced by this so-called "extract of hazelnut," when the dose has been moderate, consist in the speedy onset of dizziness and deep sleep. If the dose has been larger the patient may develop epileptiform convulsions, or the convulsive seizure may be alternately tonic and clonic, the pupils being dilated, and the spasms are followed by paralysis, delirium, coma, and death. In view of the fact that picrotoxin has not been used commonly as a poison in the past, and that many physicians are ignorant of its effects, it is probable that no safer death-dealing drug can be used for criminal purposes in connection with alcoholic beverages. It is important to note that when picrotoxin is taken with alcohol the loss of power in the voluntary muscles is very much greater than it is in ordinary cases of drunkenness. It will probably be well for every physician who is called upon to examine a case of alcoholic coma to remember the possibility of the patient having received for criminal purposes this powerful drug.

HARMFUL METHODS OF PRESERVING FOOD.

We have been very much interested in an article contributed to the *Boston Medical and Surgical Journal* of May 26, 1904, by Dr. Charles Harrington, upon the employment of sulphurous acid and its salts as food preservatives. Several times

within the past few years we have published in our Progress columns articles by foreign investigators which have seemed to prove that many of the so-called food preservatives exercise no deleterious influence upon persons who might ingest them in the small quantities which are employed for the purposes named. Notable among these was an article by Professor Liebreich, of Berlin, which was distinctly in favor of the use of these substances for preserving food on the ground that foodstuffs could be made cheaper for the poor, and yet be incapable of doing harm. In the article by Dr. Harrington to which we have referred, he points out that sulphurous acid and its sodium and calcium salts have long been used as preservatives of almost every kind of food, both animal and vegetable, and that canned corn and canned asparagus are bleached to a uniform white, and meats are reddened to the hue of arterial blood, by the use of these chemicals, either in powdered form, in solution, or in combination with borax and boric acid.

It would seem probable that these substances are used chiefly for the preservation of those cheap forms of meat which are prepared from trimmings and other parts which otherwise would be unsalable, particularly that form of hashed meat which is generally called "Hamburg steak." Notwithstanding the fact that these compounds preserve the color of the meat, it is noteworthy that they do not materially diminish putrefactive changes, and seem to exercise but little more antiseptic influence when present in large quantity than when present in small amounts. On the other hand, these substances, while not diminishing the growth of bacteria, do nevertheless diminish the odor of putrefaction, and Harrington quotes Altschuler as finding 1,890,100,000 bacteria per gramme at the stinking stage of chopped meat, while another portion which had been treated with one per cent of the sulphite of sodium did not stink, although its bacteria content was 4,757,000,000 per gramme. The average purchaser who bases an opinion as to the quality of meat by its color and odor can therefore be readily misled into the purchase of food which is far advanced in decomposition; the only test which can be employed being the fact that if fresh the meat does not adhere to the fingers, and if stale it sticks to the fingers and feels slimy.

That these salts are largely employed in the preservation of foods is shown by the fact that in Dresden fifty-four samples contained from 0.46 per cent to 1.0 per cent, and that somewhat similar results were obtained in many other German cities. In Boston—and Harrington believes that the same conditons exist elsewhere—he found fifty samples showing the presence of the sulphite of sodium in somewhat similar quantities, the prices ranging from seven to fifteen cents per pound; the samples being obtained not only from the shops which supplied the poorer classes, but from those who sold to the well-to-do also. In one case where the percentage of sulphite of sodium was not very large the brilliant red of the meat depended upon the presence of an anilin dye. Many of these samples were good to look upon, but were slimy and sticky when handled.

A certain proportion of those who take foodstuffs preserved in this way suffer from eructations of sulphur dioxide and hydrogen sulphide, from a sense of weight in the stomach, discomfort, and headache. In other instances it would seem that these preservatives exercise serious pathological influences upon the organs of the body. Thus, Kionka found that nephritis very frequently developed, and although Liebreich has criticized his results, it is a noteworthy fact that the German Imperial Board of Health has forbidden the employment of these substances. In Harrington's own experiments, he fed five cats for twenty weeks with food containing 0.2 per cent of sodium sulphite; a sixth cat received meat from the same source which did not contain this drug. At the end of twenty weeks it was found that most of the organs of the cats were healthy with the exception of the kidneys, which in every case, except that of the control cat, showed marked changes, which consisted chiefly in fatty degeneration of the epithelial lining of the uriniferous tubules. We think it unfortunate that in these experiments the cats should have been killed by chloroform, as the possibility exists that the changes in the kidney were in part the result of the action of this drug. While this possibility is remote, it serves to throw a slight doubt upon the absolute accuracy of the research.

WHAT SHOULD THE MEDICINE CASE HOLD?

We have recently published in our Correspondence columns an article in which a general practitioner, practicing in a country district, saw fit to enumerate the remedies which he had found most useful in the medicine case which he found necessary to carry on his daily rounds. The physician who lives in a city or large town usually depends entirely upon prescriptions for the dispensing of his remedies, although at the present time, in many instances, it is found convenient, even by the city practitioner, to carry a small case in which certain common remedies may be found. It is manifest, on the one hand, that the country practitioner must carry with him a sufficiently large assortment of drugs to meet all the indications which will come to him in a diversified practice. Yet, on the other hand, it is certain that he who carries an unnecessarily large number of remedies will soon find that he is overburdening himself, and after several months perceive that some of his bottles have remained untouched. Probably no physician of experience has failed to be surprised at finding that certain drugs which he placed in his case have scarcely been used, while others have had to be renewed several times within a week. It is evident, therefore, that a comparatively small number of remedies are in constant demand, and it is with these that we propose to deal, although doubtless certain physicians will feel that some of the remedies which are not named deserve a place in this list.

Of the emergency medicines suitable for a medicine case may be named hypodermic tablets of cocaine hydrochlorate, which can be used in extracting foreign bodies from the eye and for other local anesthetic purposes, including minor operations. These tablets will usually be of from ⅛ to ¼ of a grain in strength. The second line of tablets are uncompressed tablet triturates of bichloride of mercury for the preparation of antiseptic solutions. Thirdly, we should mention acetanilid in powder, in which form it may be used for the relief of neuralgic pain, for the arrest of obstinate vomiting, as a surgical dressing, and as an antipyretic. Fourthly, there may be named hypodermic tablets of ¼ of a grain of morphine sulphate, which can either be given by the mouth or employed hypodermically for all the various purposes for which we employ this important drug. Lastly, hypodermic tablets of 1/20 of a grain of strychnine should also be included in this list for obvious reasons. Of the remedies which can be used for subacute or ordinary conditions, calomel of course stands at the head of the list, and it is probably wise to have it in plain tablets, and also in tablets combined with ipecac. Not infrequently calomel fails to produce the prompt effects which we desire because this valuable stimulant to the intestinal glands is not combined with it. Yet, on the other hand, there are some cases in which a dose of calomel must be so large that were it combined with ipecac too great an ipecac influence would be produced. In the same class of remedies should be included Dover's powder in two- or three-grain tablets, and tablets of the fluid extract of aconite in the dose of 1/10 of a minim, since by this means a quantity suitable for a child can readily be dispensed, and by giving several tablets a full aconite influence can be produced in an adult. Still another tablet, or pill, which must find a place in every case is the well known formula containing aloin, strychnine, and belladonna, and in addition it may be well to have another tablet or pill containing the ingredients of the compound cathartic pill of the United States Pharmacopœia, or the so-called "vegetable cathartic pill" made under the same authority. Another tablet which is exceedingly useful is that which is known as the Chlorodyne tablet, which can be used for the relief of pain and the control of sharp attacks of diarrhea. Under the name of "Rhinitis Tablets" there is now marketed by almost all manufacturers a preparation composed of a small quantity of quinine, camphor, and belladonna which is useful in the early stages of an acute cold, and which may often be employed in association with Dover's powder in tablet form for breaking an acute cold in its early stages. It is hardly necessary to state that quinine, in soft capsules, or easily dissolved pills, and not in compressed tablets, must find a place in this collection.

There still remain two other tablets which will prove useful in a large number

of cases, namely, those which contain digitalis alone, and those which are composed of the well known formula consisting in digitalis, nitroglycerin, strophanthus, and belladonna. Last, but not least, every case should contain a tablet, or pill, of nitroglycerin. The advantage of having a hypodermic tablet of this substance is not only that it can be given hypodermically, but also that by dropping it in water and using a teaspoonful of the solution every hour an effect can be exercised upon the circulation which is practically identical with that which we produce in children by the employment of sweet spirit of nitre. For the physician who practices obstetrics, and what general practitioner does not, ergot, in tablet or liquid form, preferably in the form of ergone, will of course be necessary. Of preparations which will be found useful in more chronic conditions, several stand preëminent. The first of these may be said to be the protiodide of mercury in ¼-grain tablets; the second, iodide of potassium or strontium; the third, bromide of potassium.

In conclusion we may say a word in favor of the ordinary tablet triturate as against the compressed tablet triturate, which, in the great majority of instances, has to be compressed to such a degree of hardness that it is slowly dissolved in the normal stomach, and often not dissolved at all in the digestive tract of the patient who is ill. A very large number of other remedies may be added to this list, but these are the ones with which the young physician must provide himself, and to these may be added others as experience teaches him his additional needs.

THE DECREASED USE OF ERGOT.

Twenty years ago there was probably not a single teacher of obstetrics in the United States who did not instruct his students to administer to the parturient woman at the beginning of the third stage of labor a wineglassful of the wine of ergot, or a teaspoonful of its fluid extract. Indeed, it is probably a fact that most physicians within the last twenty years have considered that ergot should be given with the same regularity as they would consider it necessary to ligate the cord. With a better understanding of the fact that labor is a physiological process, in many instances, the fact has come to be recognized that in the average healthy woman there is no need for the administration of this uterine stimulant, and that the danger of postpartum hemorrhage, in the great majority of cases, is remote rather than near. It has also been recognized that ergot may be disadvantageous in that it may lock up in the uterus clots and other materials which might otherwise be normally extruded; and again, it is probable that the use of a dose of ergot at the beginning of the third stage of labor has little if any influence upon the uterine muscle until long after this stage has been completed, when it may produce powerful uterine contractions, which are unnecessary and painful, and which exaggerate the so-called "after-pains."

We have repeatedly in the columns of the THERAPEUTIC GAZETTE endeavored to impress upon our readers the fact that there is no drug so valuable that it can be used as a routine measure without careful thought, and so, while on the one hand it is very far from our intention to attempt to diminish the value of ergot as a uterine stimulant, on the other hand it should be given only to cases that need it actually, and not to every patient in the course of delivery. When we consider that at one time ergot was employed by some practitioners to overcome uterine inertia in the second stage of labor, and that many patients were thereby seriously damaged by the powerful uterine contractions which ensued, it is evident that the drug has been responsible in the past for disastrous effects. We now know that cases of uterine inertia can be stimulated to the completion of the delivery by the use of one or two cupfuls of strong, black coffee, by the administration of a hypodermic injection of strychnine, or by the use of a little coca wine, or the wine, or fluid extract, of kola, all of which substances act by rallying the exhausted powers of the system, and supplying sufficient nervous energy for the completion of a physiological process.

Within the last few months a number of papers have appeared in which the use of ergot has been advocated as a stimulant to the vascular system in the course of acute infectious diseases, such as pneumonia and typhoid fever. This suggestion

is by no means a new one. The fact that this drug has not attained great popularity when used for these purposes in the past would seem to indicate that it is not of very great value, and we doubt whether the enthusiastic reports to which we have referred will do more than cause a moderate return to its use for its general vasomotor effect. In other words, the time has come when ergot has at last been placed in the niche to which it belongs, which niche may be labeled "Useful in certain cases, but not in all."

IMMUNIZING INJECTIONS EMPLOYED FOR THE PREVENTION OF POST-OPERATIVE OR POST-TRAUMATIC PERITONITIS.

It is well known that even by the most careful technique it is impossible to perform resections or anastomoses involving the gastrointestinal tract without infecting the peritoneum to some extent. This infection, in a moderate extent unaccompanied by extensive traumatism, and by local developments incident to prolonged operations, is of no serious import, producing at most a merely local and transitory reaction. It occasionally develops, however, into a fatal peritonitis, even when every precaution has been taken by the skilled operator; hence the importance of measures having for their end either the prevention of this infection or the increase of tissue resistance to such an extent that the infection may prove innocuous.

Mikulicz-Radecki (*West London Medical Journal,* July, 1904) experimenting in the latter direction, notes the fact that certain injections administered hypodermically produce an artificial hyperleucocytosis associated with an increased bactericidal value. Salieri, moreover, has shown that by injections of small quantities of normal saline solution the natural resistance of the peritoneum against coli infection could be increased by sevenfold to sixteenfold. Mikulicz-Radecki, in his laboratory research, first demonstrated that injections of 0.5 per cent neutralized nucleic acid increased the power of resistance of the peritoneum sixteen to twentyfold. Repeated intraperitoneal injections raised the resistance of the peritoneum to forty times the normal.

For the purpose of simulating to some extent natural conditions, laparotomy was performed upon a number of guinea-pigs, and through an opening in the stomach or intestine such contents as could be obtained from the immediate neighborhood of the incision was squeezed into the peritoneal cavity. Four out of five animals not previously prepared died of peritonitis within sixteen hours. The fifth, after a serious illness, recovered. Of the ten animals similarly treated, but prepared beforehand by injections either of nucleic acid or of sterilized bacteria coli, all recovered. In each case laparotomy was performed seven hours after the injection, this having been found to be the time when the hyperleucocytosis developed.

A further line of experiment, in which the immunizing injections were made some time during or after the operative infection of the peritoneum, showed that the therapeutic effect was much less marked than when such injections preceded infection.

On the basis of this experimental research, neutralized nucleic acid was employed in the surgical clinic as a preparatory measure for operations upon the gastrointestinal tract. As a rule 50 cubic centimeters of a two-per-cent solution was used. The adult man received about 1 gramme of nucleic acid to 75 kilogrammes of body weight. Fifty-eight cases were treated in this way. In fifty-five the operations were abdominal. In four cases the operations were postponed, so that they did not take place until more than thirty-four hours after the injection was given.

As in animals, there was constantly observed in man a hyperleucocytosis in the blood, mostly preceded during the first hour or so by hypoleucocytosis. The operations were mostly performed in from thirteen to nineteen hours after the injection. The optimum for nucleic acid injections is reached in animals in seven hours, but it seems to occur in man considerably later. Twelve hours is the time fixed by experience, which enables the surgeon to operate on the rising tide of leucocytosis.

As to the technique accompanying the injection of nucleic acid, the most unpleasant factor for the patient is local reaction. A tenderness and slight swelling around

the point of injection remains as a rule throughout the day. Twice there was an intense and erysipelatous redness, which disappeared without leaving a trace twenty-four hours after. There was noticed also a slight increase of temperature of one or two degrees; very exceptionally it rose to 102°. There was no alteration in the urine, and no change in the patient's general condition.

In 10 cases of resection of the stomach for carcinoma, 9 recovered. The tenth died; after seven days of uninterrupted progress he developed pneumonia, which proved fatal three weeks after operation. Of 22 cases of gastroenterostomy and enteroanastomosis, 19 recovered, 3 died. None of these fatal cases was due to post-operative peritonitis. Of 6 cases of resection of the intestine, 4 recovered, and 2 died; and neither of these was due to post-operative peritonitis. The after-course of the remaining cases showed entire absence of peritonitis.

In addition to the use of nucleic acid, Mikulicz-Radecki employs copious flushing with normal salt solution, leaving as much as is practicable in the peritoneal cavity.

The general impressions gained from this method are that while it gives no absolutely certain immunization as would a specific, it increases the natural immunity, and that the cases treated by it have given more favorable results, both as to ultimate recovery and smooth convalescence, than cases where the operations were performed without this preparation.

This immunization is based on such clear laboratory findings that it is worthy of careful consideration.

MESENTERIC EMBOLISM.

The fact that Jackson, Porter, and Quinby (*Journal of the American Medical Association*, June 4, 1904) have been able to collect 214 cases of mesenteric embolism and thrombosis, a pathological condition which in its symptoms so closely resembles other intraperitoneal lesions as to render diagnosis only possible when operation or autopsy has been performed, is convincing proof that this accident or complication is one of such frequency as to make its study a matter of great clinical importance.

It is pointed out that because of failure in the collateral circulation the occlusion of the mesenteric arteries causes symptoms practically identical with those incident to closure of the veins.

The cases of etiological moment are those which lead to the formation of thrombi, from which emboli may arise. Thus arterial disease, especially of the mesenteric arteries, takes first rank. In cases of venous thrombosis the process may be primary or secondary. All intestinal changes allowing the passing of bacteria into the vessels are predisposing factors. The secondary venous thrombosis follows cirrhosis and syphilis of the liver, pylephlebitis, and processes at the liver hilum.

In the acute group, which constitutes the larger one, the disease is characterized by sudden onset of colicky, abdominal pain, followed by nausea, vomiting, often bloody, and diarrhea, also often bloody; or the symptoms may resemble those of intestinal obstruction of the paralytic type. The temperature falls below normal and the abdomen becomes distended. Peristalsis disappears, and death occurs in a few hours or days.

In the smaller group the onset is insidious and chronic. There are no abdominal symptoms. Sometimes spontaneous cure results.

Over one-half of the cases occur between thirty and sixty years of life.

The diagnosis is extremely difficult, but is based on there being present a source of the embolus, copious intestinal hemorrhages, unexplainable by disease of the gut wall or by hindrance to the portal circulation; quick and marked fall of body temperature, colicky abdominal pains, followed by distention and free fluid. The presence of emboli in other parts is shown by history. There occurs sometimes a large palpable blood tumor between the layers of the mesentery. The symptom-complex is rarely present in its entirety.

As to prognosis, this is very grave. There is a mortality of 94 per cent in all the reported cases. In chronic cases, attended by few exacerbations, the prognosis is moderately bad.

No treatment aside from operation seems to promise help. In 47 cases oper-

ated upon there was a mortality of 92 per cent.

Elliott resected 48 inches of gut with complete recovery. The autopsies showed 24 non-operative cases in which less than this quantity of gut might have been resected. In 15 of these cases there is reason to believe that operation might have been effective.

The authors advise against operation followed by immediate anastomosis. They would bring the involved gut well out of the wound, with liberal sound margins left at either end. After resection they would fix the open ends in the wound well walled off with gauze tampons. If peritonitis be present, it is combated by flushing with hot saline solution.

OPERATIONS FOR PROSTATIC HYPERTROPHY.

It has long been recognized in medical practice that the diseases least amenable to the influence of drugs are those which in therapeutic systems are found to have indexed beneath them the greatest number and variety of medicines. Applying this same reasoning to surgery, it might be held that enlarged prostate was a pathological condition with which the surgeon had not yet learned to cope, since there have been suggested, and are still practiced for its cure, prostatotomy, by the actual cautery either applied through the urethra or perineal incision; castration, ligation of the vasa deferentia, vasectomy, and angioneurectomy, prostatopexy, ligation of the internal iliac arteries, and prostatectomy through the perineum, by the suprapubic route, or by a combination of the two. There are a large number of surgeons, moreover, who believe that by the judicious use of the catheter operation may be avoided entirely, and some few who by permanent suprapubic drainage overcome the urethral obstruction.

In an admirable review on the whole subject, Watson (*Annals of Surgery*, June, 1904), first taking up the subject of palliative operations, shows that in greatly prostrated patients suffering from retention which does not yield to ordinary instrumentation, or from intravesical hemorrhage uncontrollable by ordinary means, or a urine so ropy and purulent that it will not run through a catheter, or from a lacerated urethra so tender as to make catheterization agonizing, or from a bladder so hypersensitive and giving such spasmodic action as to require undue frequency of catheterization, drainage as a preparatory stage to radical operations is an absolute necessity. Under these circumstances, or a combination of them, he advocates perineal drainage, and has long since shown that this is really a safer and less formidable operation than that of passing a trocar and cannula suprapubically, introducing into the latter a drainage tube. Drainage, moreover, has an admirable effect upon the kidney function.

In making a choice between the perineal and suprapubic complete operation, or a combination of the two, Watson first discusses the relative dangers of the three.

The mortality of the perineal total removal and the Bottini operation is the same, and is decidedly lower than that of operation by any other method. The suprapubic method, for instance, is almost five times greater. The four factors, uremia, sepsis, shock, and pulmonary complications, accounted for all but a very small number of deaths. Curiously enough, whilst the deaths from uremia bear about the same proportion to the total number of deaths in each operation, the deaths from sepsis are more than 50 per cent in the Bottini operation, less than 18 in the perineal, and less than 9 in the suprapubic. Shock, however, gives much the larger percentage of deaths in the suprapubic operation, and this is also true of the pulmonary complications.

As to the late results of these cases, Watson holds that only those are cured who can empty the bladder spontaneously, or who have at most a residual urine of not more than 50 cubic centimeters, whose urine is normal, and who can pass it freely and painlessly, and in whom this condition has been maintained for at least six months after operation. He has analyzed 688 reports of cures to determine the late results, and finds that the Bottini gives 30.4 per cent of cures, the perineal total removal 60 per cent, and the suprapubic total removal 66 per cent. All the operations give from 86 to 90 per cent of improvement. Meyer in a series of 59 Bottini operations noted as complications, perineal abscess, rectourethral fistula, epididy-

mitis, orchitis, and gangrenous testicle. Twenty-two per cent of the whole number exhibited serious or annoying complications, and in 13 per cent of the cases the operation had to be repeated. There was incontinence of urine in 2.6 per cent, and the operation failed completely in 11.6 per cent of the cases. Of the 69 fatal cases following Bottini operation, 8 were due to perforation of the bladder by the incising blade. Of the complications of the perineal operation, the peritoneum was opened twice, this resulting once in death; urethrorectal fistula occurred in 2.7 per cent of the cases, incontinence in 3.5 per cent, and failures in 7.4 per cent. The suprapubic operation gave fistula in 1 per cent, urinary infiltration in 1.6 per cent, peritonitis in one case, injury of the rectum once, and failure of the operation in 6.7 per cent.

The essentials for successful performance of the perineal operation are free exposure of the gland, making the latter accessible, and maintaining it in a fixed position while removing it, avoiding injury of the urinary sphincters, of the rectum, of the urethra and ejaculatory ducts, and the avoidance of hemorrhage.

The incision preferred is a curved one, extending from one ischial tuberosity to the other in front of the anterior margin of the anus. The key-note to reaching and freely exposing the fibrous sheath of the prostate is freeing the rectum from the posterior urethra and prostate. This is done by a transverse division of the tendinous center of the perineum, and blunt dissection between the prostate and the rectum until the outer covering of the former is fully exposed over its forward and posterior surfaces.

The prostate is rendered accessible for exposure either by downward traction upon the farther end of the gland by the tips of two fingers in the rectum, or by the tip of one finger passed through a median incision in the posterior urethra into the bladder and hooking it over the intravesical aspect of the lateral lobes. In very fat subjects one of the various tractors may be needful.

The gland may be removed by opening the prostatic urethra from its anterior end through about two-thirds of its length. The forefinger is passed into the urethra through this cut. The lateral aspect of the prostatic urethra is then opened about midway in its length on one side sufficient to admit the tip of the finger. The glandular mass is then separated along its urethral side, then beneath, in front and over the lateral aspect, and finally from the bladder. The enucleation is always carried on inside the outer sheath or capsule. The thinnest parts of the sheath are found along the urethral side and the bladder side of the gland. It may be absent or very delicate in these places, the mucous membrane alone covering the glandular tissue there.

The lobe having been separated, it is seized in forceps and removed through the opening of the urethra.

Hemorrhage is avoided by carrying on the enucleation between the inner capsule and its outer sheath. In some cases the latter separates into lamellæ; in others it is extremely thin. Injury to the rectum is avoided by blunt dissection, by not trying to withdraw too large a mass through too small an opening, and finally by not making downward pressure upon an already enucleated lobe or lobes by the finger passed above them, and in attempting to draw the mass out by it.

The improvements of the Bottini operation embrace better instruments, knife-blades, properly regulating the size of the cut, and an operation planned on the basis of a careful preliminary cystoscopic examination.

The decline in the mortality Watson attributes to improved technique, notably in connection with the perineal radical operation, and in a smaller degree to better selection of patients for the application of the operative treatment.

The most important steps in advanced technique have been the introduction of new means for making the gland more accessible, for maintaining it in place during its removal, and the adoption and adaptation of the appropriate incisions and methods of removal of the hypertrophied mass, whereby this is accomplished in the most complete manner with the least injury to the structures involved. Indeed, it is thus possible to preserve the urethra uninjured, and the same is true in respect to the ejaculatory ducts. It is particularly urgent, in view of the success of the modern operation, that the radical operative treatment should be adopted at an early

stage of the malady; in other words, as soon as the hypertrophy can be clearly detected by examination, if it has not already given rise to alarming symptoms. The method of choice is total removal of the gland by perineal incision.

MERCURIAL INJECTIONS IN THE TREATMENT OF SYPHILIS.

Some years ago the treatment of syphilis by hypodermic injection was warmly advocated by a few enthusiasts, and temporarily adopted by many of the profession, who were led to believe that by this means this specific medication could be introduced painlessly, secretly, and more effectively than by other methods. The fact that, as a routine procedure, the injection method has practically been abandoned all over the world seems sufficiently conclusive as to its value. It is quite true that by the use of cleanly methods and proper solutions abscesses will never develop. It is also true that where proper precautions are observed, and the patient kept under observation, salivation is most unlikely to occur, since this, in the most severe form, rarely occurs in the hands of the expert except when there is undetected renal lesion. It has been the experience of every one who has given the hypodermic method of medication a fair trial, however, that occasionally, and for no particular reason, an injection will cause a pain so severe as to be temporarily crippling. It is also the general opinion of the profession that syphilis can be permanently eradicated only by prolonged treatment, at the very least for two years, preferably, interrupted, for four years. None the less, Wickham (*Practitioner,* July, 1904) states that the hypodermic method is taking permanent place in the treatment of the disease, and he calls attention to the fact that the technique of the method has been gradually perfected.

Wickham points to the fact that this method spares the stomach, that more exact dosage is rendered possible, and that the drug penetrates more directly into the blood stream. He holds that malaise and slight fever indicate the limit of tolerance. As to the site for injection, the gluteal region is chosen. The injection should be driven deep into the muscles. The syringe employed is preferably of glass. Platino-iridium needles are used. For the reception of the mercurial solution, small glass bulbs, hermetically sealed, are recommended, and these should be warmed. For the purpose of avoiding subsequent pain, the injection is started very slowly. The patient is asked if it hurts. When he makes complaint the needle is either withdrawn or pushed farther in, since pain indicates that the needle impinges on a nerve filament.

The preparations employed are either soluble or insoluble. The soluble preparations are rapidly absorbed into the circulation; the insoluble on the other hand form deposits which are only gradually assimilated in the course of several days.

Of the soluble salts, biniodide of mercury, benzoate of mercury, and cyanide of mercury are preferred, and in solutions of 1 to 100, one cubic centimeter being given at a time, which may be increased to three cubic centimeters. The doses should be given daily for about a month.

Of the insoluble salts, purified mercury, calomel, and basic salicylate of mercury are employed, made up by rubbing together with vaselin.

This hypodermic medication in individual cases is extremely serviceable. It is especially indicated when a rapid effect is imperative. The fact, however, that all the world-renowned centers for the cure of syphilis practice its treatment with inunctions proves beyond controversy that this is the most practicably efficient method of introducing the drug.

Reports on Therapeutic Progress

THE TREATMENT OF HEMORRHOIDS.

Editorially the *London Practitioner* for June, 1904, gives the following advice as to this condition. After reminding us that it is, and always has been, customary to divide hemorrhoids into two varieties, internal and external, it adds that it is important for the practitioner to recognize this classification before commencing treatment. The external variety are either hypertrophies of the skin surrounding the anus, or venous tumors situated at the anal margin and covered by skin. Inflammation occurring in an ex-

ternal hemorrhoid is popularly called "an attack of the piles," and this is the earliest symptom pointing to the presence of the condition. It is possible, by recognizing the causes of this, to give advice which will often avert attacks. Persons suffering from external hemorrhoids should be warned against constipation, overeating, and overdrinking, all of which indirectly tend to produce inflammation. Too much and too little exercise should be equally guarded against. The anus should be carefully cleansed; neglect of this precaution often leads to attacks of inflammation.

When inflammation occurs, it is most important to recognize the condition as one of external hemorrhoids, and not to regard it as a prolapse of internal piles. Active exercise should be forbidden, and the diet must be restricted, very little meat being allowed, while alcohol should be entirely abstained from. The bowels should be caused to act by some simple aperient. Probably the best is sulphate of magnesia taken in the morning, fasting; some aperient water may be substituted for this, and another very useful aperient is a mixture of equal parts of the confections of senna and sulphur in teaspoonful doses.

The local treatment consists in applying some soothing, and at the same time astringent, lotion or ointment. As a rule ointments give more lasting relief than lotions, and they are more easy of application. As an ointment we may order bismuth subnitrate 1 drachm, cocaine hydrochloride 4 grains, and vaselin 1 ounce, which will often be found very useful; or we may substitute extract hamamelis 1 drachm, lard 1 ounce.

If a lotion be preferred, lead water with or without laudanum may be prescribed.

Under this simple treatment the attack will often very shortly subside. Sometimes, however, the symptoms increase in severity, the hypertrophied tags of skin around the anus become very edematous, and the venous tumors undergo thrombosis. Pain is severe, especially on sitting, exercise, and defecation. Some constitutional disturbance is also present. Such patients should be confined to bed, and either of the above mentioned ointments, or ointment of galls and opium of the British Pharmacopœia, or equal parts of the extracts of opium and belladonna, should be applied. Hot fomentations often relieve the pain. Some patients, however, prefer cold applications. The acuteness of the pain will often subside under this treatment. Should it not do so, it is sound practice to incise the edematous tissue or to excise the V-shaped portions of it. Should suppuration occur, early incision is imperative. In the event of the occurrence of thrombosis, the tumor should be incised, the clot turned out, and the cavity packed and allowed to granulate from the bottom.

Internal hemorrhoids are of three varieties, according to the classification adopted by most authors—capillary, arterial, and venous. The capillary variety resemble arterial nevi. Hemorrhage is their one sign. The hemorrhage is arterial, frequently repeated, and very exhausting. A digital examination of the rectum will probably reveal nothing. The diagnosis is based on the one sign—hemorrhage—and on ocular inspection. The hemorrhage can often be controlled by astringent injections into the bowel. Useful injections are sulphate of iron (gr. ij to ℥j) or liquid hamamelis one ounce night and morning. If this fails to check the hemorhrage, operation should be undertaken.

Arterial piles cause arterial bleeding, which is only rarely relieved by palliative measures, *e.g.*, the above mentioned injections. Prolapse is infrequent, but a tumor or tumors may be felt on digital examination. For the relief of this condition operation has generally to be undertaken.

Venous hemorrhoids cause symptoms owing to the hemorrhage and discharge which they occasion, but more frequently by becoming prolapsed. Prolapse takes place at stool only at first, later on at other times; and finally prolapse may be continuous, and the sphincter so stretched that the patients are unable to retain flatus and feces. Venous tumors may often be relieved by attention to general principles, such as regular exercise, avoidance of excesses at table, and maintenance of regular action of the bowels. Aperients which are found to suit individual patients best should be given. One or other of the following may be selected: Sul-

phate of magnesia, confection of senna and sulphur, rhubarb pill, mercury pill, colocynth and hyoscyamus pill. Should palliative measures fail to relieve, should the tumors be very large, should hemorrhage or discharge be profuse, and should a marked tendency to prolapse be present, operation must be undertaken.

It not infrequently happens that internal piles prolapse and become grasped by the sphincter ani and occasion severe pain. Should the practitioner be called to such a case he should apply a 10- or 20-per-cent solution of cocaine to the prolapsed portion, waiting a few minutes for the cocaine to act; and should then by gentle compression and upward pressure endeavor to return the mass. If this maneuver prove unsuccessful, the application of cold may reduce the size of the tumor, and then reduction may be successful. If this be unsuccessful, suppuration and the separation of sloughs should be encouraged by warm applications, some soothing ointment being at the same time applied.

THE TREATMENT OF CHRONIC DYSPEPSIA IN CHILDHOOD.

In the *Birmingham Medical Review* for January, 1904, JORDAN states that drug treatment is necessary in all cases of chronic dyspepsia in children, and to be effective must be continued for a long period. It is well, therefore, to warn parents at the outset that the condition is one which cannot be cured unless they are prepared to carry out the treatment prescribed steadily and persistently.

During an actual catarrhal attack, or where the directly dyspeptic symptoms are prominent, such a draught as the following, to be given three times a day fifteen minutes before meals, may be prescribed:

℞ Sodii bicarb., gr. vj;
Tinct. nucis vom., min. ij;
Sp. chloroformi, min. ij;
Aquæ menthæ pip., q. s. ad f℥ij.
M. Ft. Haust.

If constipation is present, as is so often the case, it must receive the most careful attention. Cascara in the form of a draught at bedtime is very useful, and it may thus be continued, while other medical treatment varies with the necessities of the case, throughout the whole period, or as long as it is required. The following formula may be suggested, or one of the "elegant" preparations of the chemist may be used:

℞ Extracti cascaræ sagradæ fluidi, min. x;
Tinct. nucis vomicæ, min. ij;
Tinct. belladonnæ, min. v;
Glycerini, min. x;
Aquæ menth. pip., ad ℥ij.
M. Fiat haustus, hora somni sumendus.

The constipation may in some cases be met by the introduction of rhubarb or magnesia into the draught before meals. This involves remembering to continue laxative treatment in some other form when the subsidence of the "gastric" symptoms, leaving the patient with weakness, lassitude, and poor appetite as perhaps the chief complaints, enables one to begin a course of iron, five minims of the chloride with a little strychnine in two drachms of chloroform water immediately after meals. Cod-liver oil may be combined with iron at this stage. A recurrence of catarrh will often compel reversions to the earlier type of treatment.

In cases of very feeble children advantage may be derived from the use of one of the preparations of digestive ferments.

Dr. Eustace Smith's warning against tonic syrups in these cases is of great practical value.

Where headaches of more or less distinctly periodic type complicate the case, five grains of antipyrin may be added to the alkaline draught before meals. This drug children take well, and it rarely fails to abolish headaches in them.

Regulation of the diet is, of course, of great importance, and the directions given will vary in different cases and at different periods of a case. Some cases are kept up by injudicious feeding, and will be relieved speedily by the prohibition of sweets, pastry, pickles, and tea; here appetite may remain generally good, or may exist as a craving for the very food that must be denied. In other cases there is little appetite, and we have to allow almost anything for which a desire can be created.

In severe cases beef tea and mutton broth, with dry toast, may form for a time the sole form of nourishment. Milk and meat are the next things to be cautiously introduced into the diet.

Later, and in milder cases, the following rules are to be observed: Meals at regular intervals, not too long; nothing between meals; no tea or coffee, no pickles, sauces, or highly seasoned foods. Potatoes should at first be forbidden, and later may be allowed once a day only; care must be taken that they are good and properly cooked. Farinaceous foods and sweets must also be avoided until there is very marked improvement. Milk, eggs, bread and butter, fish and meat of the more digestible varieties, with perhaps porridge, will be available ingredients of the dietary.

It is necessary to see that clothing is sufficiently protective over the abdominal organs and thighs, and not too thick and heavy on the chest. Chills are, no doubt, a frequent cause of relapse. If we have insisted on proper clothing, we can insist also that the child gets out-of-doors into the open air to a generous extent, and is not kept in the house on the plea that "it so easily takes a chill."

We are often asked whether the child should go to school. Our answer must depend on the degree to which the disease is impairing the child's energy. A holiday at the beginning of treatment is almost always necessary, and should last until the child once again shows brightness and activity. Children under eight may always be relieved from school attendance, and probably no child should go to school who is described as eating "no breakfast." It is well to ascertain for oneself, if possible, what the child actually does instead of going to school.

Supervision of diet, clothing, and occupation is of great importance, but drug treatment must supplement this. Occasionally an ill-ventilated or drain-poisoned house may be responsible for the whole mischief.

THE MODERN TREATMENT OF THE MORPHINE, WHISKEY, AND OTHER DRUG ADDICTIONS.

CROWELL in the *Virginia Medical Semi-Monthly* of June 10, 1904, discusses this subject and states in regard to sudden withdrawal that there is an idea prevalent that by the sudden suppression of the morphine there is danger of collapse, heart failure, etc. This is erroneous. Should the heart derive any stimulation from the morphine, the unloading of the intestinal canal and relief of the general congested condition of the system would more than compensate for the stimulus derived from that drug.

The elimination process is begun when the patient enters the hospital. He should have a hot bath. It is well, also, to give some simple diuretic, especially if the kidneys are not acting well. Late in the afternoon give some good brisk purgative; ordinary ones will not answer in these cases. Rather heroic doses must be given to accomplish the desired results, for the system is benumbed by the opiate, and the good results depend considerably upon the completeness of the elimination. The patient should eat neither dinner nor supper.

The purgative employed by the author consists of the following:

℞ Hydrarg. chlorid. mit.,
Extract cascaræ sagradæ, āā gr. x;
Pulv. ipecac., gr. ij;
Strych. nitrat., gr. ⅛ to ½;
Ext. colocynth comp., gr. x;
Aloin, gr. j.

M. et ft. capsulas No. iv. S.: One at 4, 6, 8, and 10 P.M.

The patient may have his accustomed dose of morphine until bedtime, say 10 P.M., when he takes the last capsule, when he is informed that it is his last dose of morphine. From five to eight hours after the last capsule give the patient a hypodermic of nitrate of strychnine, gr. 1-20 to 1-15, and a large dose of some saline cathartic. Repeat the cathartic until the bowels act freely. By this time the aloin and colocynth will have stimulated the lower bowel, the ipecac will have relaxed the intestines and increased the secretions from its mucous surfaces, and the mercury and cascara have stimulated the eliminating glands, and the strychnine have accelerated the intestinal peristalsis.

This alone would fairly well empty the alimentary tract and relieve portal and lymphatic congestion, but there is still work for the saline. Its depleting, flooding action carries into and out of the alimentary and urinary tracts a further residue of the effete material, toward which our attention is now most directed. At this time the patient should have another hot bath. Elimination is not yet complete, but the greatest obstacle has been overcome. As the obstructions have been

removed to a great extent, the heart has little to do but roll the blood along on a level. However, should it coincidentally be weak, support it as in any other emergency. In these cases, after elimination has been completed, it is best not to use strychnine as it may unduly excite peristalsis. Sparteine sulphate is an ideal support in such cases, in doses of from ½ to 2 grains. Now we have avoided the greatest troubles which would naturally occur upon withdrawal without elimination. Most of the other troubles are of mental and nervous origin. The administration of the morphine, or a derivative, would allay these symptoms an indefinite time, but upon the subsiding of the stimulating effects the secondary would predominate, and the patient would be practically in the same pathological condition found in the beginning of the treatment.

With properly selected drugs, the disagreeable nervous and mental phenomena incidental to the completion of the elimination can be avoided, and the process of recovery not interfered with. This time varies from twenty-four to forty-eight hours after the process of elimination has been well begun. At the end of that time the patient usually needs but little if any other medicine, and will remain comparatively comfortable and free from all cravings for the original drug, his appetite and digestion will be good, he will sleep sufficiently, and his stage of convalescence will be very materially shortened as compared with that by the gradual reduction.

Hyoscine hydrobromate is an ideal drug to control the patient during the nervous and mental stage referred to above. It acts as a nerve sedative, produces comfort, and prevents that indescribable feeling incidental to withdrawal of morphine, but has none of the bad effects produced by opiates, and is without any inconvenience to the patient.

The administration should be begun as soon as elimination has been well started up, or as soon thereafter as abstinence symptoms manifest themselves. The dose varies greatly with individuals, ranging from gr. 1-200 to gr. 1-50 hypodermically, at periods varying from thirty minutes to six hours. At first give the smaller doses, and repeat till sleep is induced or the patient is easy and free from all pain. As the dose in one case is no index to that in another, the physician must be present constantly during the hyoscine period to observe the effects of each dose so as to determine each subsequent one. Hyoscine, in proper doses, does not injuriously affect the vital functions nor leave bad after-effects on either the mind or body; therefore it should be given until the full physiological effects are manifested—*i.e.*, to the point of delusions and hallucinations. The patient should be kept thoroughly under its influence for a period of twenty-four hours; then its effects should be allowed to subside. If at this time the patient expresses a desire for morphine, or if he is uncomfortable from abstinence, a full dose of hyoscine should be given, and after its effects have subsided it should be repeated, if necessary, until he expresses himself free from all desire for morphine, and abstinence symptoms do not return.

If elimination has been thorough, it will rarely be necessary to continue hyoscine over twenty-four to thirty-six hours. At the end of this time the patient will remain free from pain and nervousness, will sleep from five to eight hours out of each twenty-four, have no craving for morphine, and in a very short while have an appetite hard to gratify. No other medicine is needed, nor should any be given except in unusual cases, and when given it should have a specific purpose, and the patient should be made to know this purpose, so that he will not think that the medicine is a "tonic" or substitute for the morphine, and that his existence depends upon it. Never send the patient away from the institute taking medicine. Give a hot bath every other day, alternating with cold douches or baths as indicated.

The diet should be light and easily assimilated.

Do not permit alcohol in any form during treatment, and impress the patient with the importance of being a total abstainer after leaving the institute, as alcoholic drinks in any form invite a return to the morphine habit.

As to the time required for treatment, this varies with different individuals. One person may be more thoroughly cured and fortified against relapse in fifteen or twenty days' time than another in thirty or forty.

THE ADMINISTRATION OF HYPNOTICS IN NEURASTHENIA.

With no intention of covering the whole ground of the treatment of that very troublesome symptom of neurasthenia, namely insomnia, LERMITTE in the *Medical Press* of May 18, 1904, points out the results obtained from the use of some drugs which he has constantly employed during the past ten years. Undoubtedly much can be done to relieve this form of insomnia by the rest cure and the Weir Mitchell treatment, but there exist a vast number of patients who either cannot or will not afford the time or money which these somewhat expensive measures involve. Consequently the practitioner, deprived of these means, is compelled either to disregard the sleeplessness of his patients or to resort to the use of some hypnotic, and probably in the majority of his cases he will have to adopt the latter course. If this be granted, then the choice of a hypnotic becomes an important question of almost daily recurrence.

There are some hypnotics which the public have appropriated, and which they are in the habit of taking without medical advice. This we are powerless to prevent, but when the patient seeks our advice it may be laid down as an axiom that one of the worst things we can do is to place in his hands a hypnotic to which he can resort at will. The disastrous results of telling a patient that he may take, for example, tablets of sulphonal when he is unable to sleep must be known to all of us.

The four drugs which the author has used are: (1) A bromide mixture, each drachm of which contains potassium bromide, chloral hydrate, of each gr. xv; tincture of hyoscyamus, min. xx. (2) Chloralamide. (3) Chloretone. (4) Paraldehyde. The results obtained from their administration are given in the following table, which has been compiled on the results obtained in 197 cases, in which the bromide mixture was given in 111 cases, chloralamide in 65, chloretone in 15, and paraldehyde in 6 cases:

Drug.	I.	II.	III.	IV.	V.	VI.
	M.	H. M.	H. M.	M.	H. M.	H. M.
Bromide mix.....	50	4 5	3 15	15	5 45	2 0
Chloralamide.....	45	4 40	2 0	15	5 45	3 0
Chloretone.....	32	5 40	0 55	20	5 55	3 15
Paraldehyde.....	23	5 23	0 35	20	6 5	5 5

Column I. Average time taken to act. II. Average period of induced sleep. III. Maximum time taken to act. IV. Minimum time taken to act. V. Maximum period of sleep. VI. Minimum period of sleep.

Chloralamide has been specially recommended as a hypnotic in neurasthenia, spinal and cardiac cases. It possesses no analgesic effects, and it is said to be unsuitable for the treatment of insomnia in phthisis. With regard to the mode of administration, it is most advantageously given in a weak alcoholic solution, and in doses of from 20 to 50 grains. It is not readily soluble, but, unlike sulphonal, we cannot call heat to our aid, as chloralamide is decomposed by a temperature of 120° F. Taken in the form of a powder, it is slow and uncertain in its action. The author has not observed any unfavorable results from its administration, and, in fact, it seems to be peculiarly devoid of after-effects.

Cappiletti has reported the results obtained by him from the administration of chloretone in twenty-five cases of mental disease, in which the duration of sleep varied from two to five hours. As far as the author has been able to observe its effects, chloretone does not influence the pulse or respiration, nor does it upset the digestive system. He has only seen unpleasant after-effects in one case, in which diplopia, drowsiness, and headache supervened.

Paraldehyde is an extremely objectionable drug to take, having a very pungent ethereal taste and odor. Another drawback to its use is that it imparts an odor of garlic to the breath. It is said to considerably increase the flow of urine, but this statement the author is unable to verify. It has been said that paraldehyde does not produce headache on the day following its administration, but his own impression is that it does, although it is difficult, when treating neurasthenics, to feel certain that the drug is the cause of the headache of which the patient complains. It certainly does not derange the stomach as might be expected from its extremely disagreeable flavor, nor has he seen it produce skin rashes.

If we compare the results obtained from the administration of these four drugs we

arrive at the following conclusions: First, with regard to the average time taken to induce sleep, the bromide mixture acted the slowest (column I). The maximum and minimum times taken to act are seen in columns III and IV. As far as the maximum of induced sleep is concerned, there is but a matter of twenty minutes to choose between the four drugs, paraldehyde winning by that amount, but in the minimum of sleep there is a difference of over three hours between the sleep obtained by the bromide mixture and that from paraldehyde. On the whole the results obtained from the latter drug are very satisfactory, but there will be few of us who will succeed in inducing our patients to continue to take it for any length of time.

THE TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS BY INTRASPINAL ANTISEPTIC INJECTIONS.

The *Medical Record* of June 4, 1904, contains an article by NAMMACK on this subject. He reminds us that at a stated meeting of the Section on Medicine of the New York Academy of Medicine, Dr. Morris Manges gave the detailed histories of three cases which had recovered under the lysol treatment by injection.

Considering that the mortality in different epidemics of cerebrospinal meningitis has varied from 20 to 75 per cent, it is very difficult to draw conclusions from any treatment. A régime in which we may take great pride during one winter's experience with any infectious disease may ride us to a bad fall in succeeding years. A post-mortem study of the brain and spinal cord of a fatal case of spotted fever will also make one skeptical of the value of any alleged specific. And when we read of nine consecutive cases of this disease recovering, without defect of special senses, under inunctions with an ointment containing an organic silver salt, "not begun until grave symptoms appeared," we can only regret that the author's delightful therapeutic optimism is not as infectious as the disease under consideration. Netter's seven cases of recovery—only five complete, however—under repeated lumbar punctures and baths at a temperature of 100° to 104° given for twenty or thirty minutes every third or fourth hour, night and day, make a more rational appeal to our understanding. The value of repeated lumbar punctures has also been emphasized by Koplik. Bela Angyan believes Quincke's puncture to be a rational method, but confines his own treatment to the use of the ice-bag and the subcutaneous injections of bichloride of mercury, made daily along the course of the spinal column. He reports 70 per cent recoveries in twenty-seven cases under this régime. Wentworth is quoted by Osler as never having seen any cases benefited by lumbar punctures, though constantly on the watch for them. Osler himself speaks of benefit as being possible by withdrawal of cerebrospinal fluid, and thinks that in certain severe cases laminectomy and drainage would be justifiable.

In estimating the possibility of beneficial results from intraspinal injections of lysol, we must consider what lysol is, how it may act, and what danger may attend its administration. Lysol, which is obtained by dissolving in fat, and subsequently purifying with the addition of alcohol, the fraction of tar oil which boils between 190° and 200° C., is a brown, oily-looking, clear fluid, with a feeble aromatic, creosote-like odor. It is said to be five times greater in antiseptic power than carbolic acid, and one-eighth as poisonous. Gerlach, of Wiesbaden, found that 2.5-per-cent solutions of lysol diminished the growth upon gelatin of spores of anthrax bacillus in one hour, up to complete arrest of growth in six hours. Much weaker solutions arrested the growth of staphylococcus pyogenes aureus in fifteen minutes. Five-per-cent solutions of lysol reduced the number of colonies in decomposing fluids from about 300 in thirty minutes, to 50 in one hour, and to zero in six hours. Lysol might then reasonably be expected to inhibit the growth of pathogenic microorganisms in the exudate of cerebrospinal meningitis, and the clinical proof of this was furnished by the published report of the results in the Lisbon epidemic.

That lysol is reasonably safe, even in much stronger solutions than had been employed in Lisbon, is also evident from its extensive employment in gynecological and obstetrical practice, where the chances for its absorption from broken surfaces are very favorable. G. Burgl, in the *Münch-*

ener Medicinische Wochenschrift, gives two cases in which young children were fatally poisoned by teaspoonful doses of lysol, given internally by mistake. Burgl also collects 16 other cases of lysol poisoning from the literature. Of these 18 cases, 13 were produced by internal administration, of which 7 recovered and 6 died; 5 by external application, of which 2 recovered and 3 died. The largest internal dose which was followed by recovery was 60 grammes in an adult, and 25 grammes in a four-year-old child.

A COUNTRY DOCTOR'S MEDICINE CASE.

ESCHBACH in the *Iowa Medical Journal* of June 15, 1904, writes an article on this subject. In enumerating the drugs used most, the author does so without reference to their relative importance, but rather as he happens to pick them out from his case.

First, he found calomel in one-quarter grain tablets, a convenient size. For children he gives a half tablet every half-hour, or hour, until free purgation is induced. To adults he gives a whole tablet at the same intervals, and it has helped him in many a case of that protean aspect of alimentary tract disturbance generally described as "biliousness." It commends itself by its tastelessness and will stay down, if anything will stay down. In addition to its purgative action it possesses antiphlogistic and antiseptic powers, which are so much needed in these cases, or in fact in any case of autoinfection from disordered alimentary tract secretion, besides its rôle of an agent that produces "defecation while you wait."

He generally follows its administration in adults with a dose of a saline cathartic.

The next bottle he picks from his case contains the tablets of aloin, strychnia, and belladonna, or sometimes a tablet with the addition of ipecac. As a bowel persuader for more regular and continued use in conditions of chronic constipation it has power very satisfactory to him.

The next bottle contains bismuth subnitrate, which he uses as an antiseptic, protective, sedative, and mild astringent, because of its adherent properties, in cases of irritation and inflammation of the gastric and intestinal tract, simple diarrheas of irritation, chronic bowel complaints of children, in pyrosis, for the vomiting of pregnancy, catarrhal eructations, and, in the absence of his surgical case, as a surgical dressing in wounds.

Next he finds a bottle of Dover's powder, useful as an antipyretic in the febrile conditions of children, as a sedative in the coughs of bronchitis, in the early stages of pneumonia and pleurisy, and in the various forms of diarrhea where a sedative and mild analgesic agent is indicated.

Next he finds potassium bromide used in congestive headaches, in quieting cerebral excitement when not inflammatory in nature, lessening nervousness, a good adjuvant to chloral in insomnia and delirium tremens, a good sedative in chorea, and one of the most reliable remedies in epilepsy, curing a few cases, ameliorating many, and failing always in some.

Side by side with this drug he finds chloral hydrate, the most reliable pure hypnotic yet produced. Always of value in the wakefulness of excitement and nervous irritation and in the wild delirium of the early stages of acute fevers, but to be avoided in the delirium and wakefulness of the dynamic later stages. In puerperal mania, puerperal convulsions, and the convulsions of children it is of undoubted value. In cases where the stomach is extremely irritable, or where from convulsions the patient is unable to swallow, the remedy may be given, properly diluted, per rectum, remembering always that in concentrated solution it will blister.

Then directly opposite to these last depressomotors he finds the excitomotor *par excellence,* strychnia, both the sulphate and the arseniate—a remedy he values more and more with each successive year of practice; a remedy he uses every day, carefully but fearlessly. He uses it as a tonic in all conditions of atony and relaxation, in cases of chorea minor, in many of the paralyses, as a stimulant after abuse from alcohol, as a cardiac stimulant, and as the best respiratory stimulant. In pneumonia it is one of the sheet-anchors. In obstinate pulmonary troubles with dilated right heart it is invaluable. It is of great advantage also as an adjuvant to other drugs in the treatment of the coughs of aged and feeble subjects. In gastric disorders and constipation and

diarrhea, and in the various local paralyses, it gives tone to the system.

Next he finds digitalis, the most powerful and most useful of the cardiac tonics. In simple loss of cardiac muscular power, as in simple dilatation, digitalis is a powerful corrective. In restoring the normal power and force of the cardiac contractions in valvular lesions, it is a most efficient agent. In a heart where from valvular lesion the rhythm is lost, the action irregular and enfeebled, or in other cases irregular and tumultuous, battering its encasement to the terror and discomfort of its owner, how often has he seen digitalis act as a governor on the engine, slowing up its movements, restoring its rhythm and force, and bringing peace and comfort, where before was terror and agony.

He next finds aromatic spirit of ammonia, a most excellent remedy where a quick heart-stimulant is needed. The more sudden and purely functional the heart failure may be the more efficacious it is. In heart failure during anesthesia it is of value hypodermically, but as its action is evanescent in character it needs the addition of more enduring remedies to keep up the good effect of its quick action. It is also of use as a stimulant to expectoration in the bronchial affections of children and in adynamic pulmonary affections. As an antacid in the gastric headaches of acidity it is also useful.

Then we find a bottle of fluid extract of ergot. It is needed in cases of obstetrics, but not so generally used postpartum as formerly. Thus the author never uses it antepartum to stimulate a tardy labor: Because, first, we have learned that a clean, empty uterus usually contracts properly after a normal labor and needs no stimulation from ergot if its cavity is properly emptied and normal bodily conditions prevail to prevent hemorrhage. Secondly, it is still less needed antepartum to bring on pains of labor for expulsion, as the pains it induces are not properly intermittent, but more or less tetanic, violent, and constant, endangering the life of the child; because the violent and prolonged contractions must necessarily interfere with the circulation of the placenta and therefore with the respiration of the fetus, and a still-born child is often the result of antepartum administration of ergot. Quinine or strychnia will give a proper uterine stimulation when needed. But ergot is often needed for postpartum hemorrhage from uterine atony, and when needed is invaluable. The author does not pretend to give all the possible uses of ergot, such as its effect on uterine fibroids till such time as operative work will be permitted, or enlarged prostates in old men where its physiological action points to its use, and there are clinical data to point to its efficacy, but its use, in connection with obstetrics, calls for a place in every physician's case.

A bottle of chloroform for use in convulsions of children and adults, puerperal eclampsia, and wherever a general anesthetic is required on short notice, should be kept on hand. No medicine case should be without it.

BROMETONE.

The *Medical and Surgical Monitor* of June 15, 1904, contains an editorial article in which the following practical information is given about brometone:

The writer refrains from entering into the detail of its employment in individual cases, as this should be looked upon in every sense as a preliminary report, and a summary will therefore suffice at present. His conclusions, based upon the use of brometone in a series of twenty unchosen cases, is as follows:

1. It acts as an excellent sedative in mild conditions of excitation and insomnia.

2. It gives good service in allaying symptoms of so-called narcotic abstinence.

3. It is a most useful sedative in the nervous affections of children and adults, as it replaces the usual large doses of bromides by very small doses. Two grains thrice daily in children of six years act excellently in chorea and epilepsy.

4. In simple and hysterical nervousness it yields good results.

5. In about 60 per cent of cases it was of service to ameliorate the frequency and severity of attacks in epilepsy from all sources, replacing the bromides in dosage of about one-fifth or one-fourth the latter, but in no case did brometone effect a cure of the underlying epilepsy.

6. It exerts only a feeble influence in conditions of great cerebral hyperemia with excitement and motor activity.

7. It should be used cautiously in doses not exceeding 25 grains daily, as in persons predisposed by idiosyncrasy it produces dizziness, vertigo, anorexia, and mental hebetude, all of which symptoms disappear upon discontinuance of its use.

While therefore brometone has some side effects of a disagreeable nature—as was to be expected from its composition—it seems to occupy a worthy place as a mild sedative, having the advantage of small dosage and convenient administration in capsules or simple syrup. The combination of brometone and chloretone has been suggested to the chemist in the belief that it will prove of value in conditions of nervous irritability associated with pain, nausea and vomiting, notably in seasickness and after the use of an anesthetic. It should be useful, it seems, as a prophylactic to the nausea of chloroform or ether narcosis employed prior to the operation.

PRESENT-DAY TREATMENT OF TUBERCULOSIS.

The *Iowa Medical Journal* of June 15, 1904, contains an article by KIME on this subject. He quotes Hillier, a well known English authority: "Ocean voyages, high altitude, and dry climates have all been eulogized in turn as remedies for phthisis." The writer has had phthisical patients under his care and observation for considerable periods of time under all these conditions, and the conclusion he has come to is that the benefit derived in every case is chiefly dependent on the extent to which the patient is constantly kept in pure air.

The medical history of a case of tuberculosis usually is:

1. A course of patent medicines prescribed by himself, the druggist, or by the patient's friends.

2. A course of medicine under the physician, consisting of creosote, guaiacol, cod-liver oil, maltine, tonics, etc.

3. A course of tuberculin, lymph, copper, or other specific for revenue only.

It is difficult to say which of these courses is most harmful to the patient. All lull him into unsuspecting belief that something is being done, and that he is getting better, while his chances for recovery are daily slipping away from him.

While it is certain that no medicine or lymph or other substance has any known value whatever on the tuberculous process, drugs have a legitimate place in this disease. Intercurrent symptoms arise and occasionally call for treatment. If the cough is excessive, night sweats severe, diarrhea exhausting, or other like troubles arise, remedies suitable for their relief are indicated. But that permanent relief may come from drugs is an error no less grave than that the principles of Christian science applied might be fraught with results for good.

Time is lost in any attempt to treat these cases with medicines, and time is the essential factor which determines the chance of recovery in this disease.

In this connection the writer quotes from the report of the Tuberculosis Committee of the Charity Organization Society of the City of New York, which is composed of many of the best phthisiologists in this country. It says: *"Resolved,* That a public announcement be made that it is the unanimous opinion of the members of this committee that there exists no specific medicine for the treatment of pulmonary tuberculosis, and that no cure can be expected from any kind of medicine or method except the regularly accepted treatment, which relies mainly upon pure air and nourishing food."

What then shall we do with the consumptive patient?

First we must recognize his condition much earlier than has been done by many in the past. It is not unusual to see these patients in almost their final stages without a diagnosis having been made. Such cases practically all die no matter where they go or what they do. It is exceedingly important that they be recognized in their incipient stages. Time must not then be lost in treatment with medicines. These do no good, while each day the patient approaches near to that point where recovery is impossible.

Of all the factors in the treatment of tuberculosis fresh air and sunshine stand first. Trudeau put it, fresh air 50 per cent, nutritious diet 25 per cent, rest 25 per cent.

Medical supervision, constant, painstaking, and with the firmness of military discipline, is necessary to carry out the conditions essential to the proper treatment of this disease. This may be found only in the modern sanatorium for tuberculosis.

THE TREATMENT OF HYPERPYREXIA IN MEASLES AND SCARLET FEVER BY BATHS OF INCREASING TEMPERATURE.

BERG in an article contributed to the *Medical Record* of July 2, 1904, reminds us that the usual methods for reducing temperature in infectious eruptive fevers, employed also in measles and scarlet fever, are cold or cool baths, like the Brand baths used in typhoid, the cold or cool sponge baths, the cold pack, and antipyretic drugs. The last may be dismissed with an interdiction, as no knowledge exists of any of the acute infectious diseases in which these drugs are warranted for the reduction of hyperpyrexia. The reasons for this are for the most part well known and need not be entered upon here. As far as the use of the other three methods is concerned—baths, sponge baths, and the cold pack—one fact is true with reference to all three of these methods of reducing hyperpyrexia, when applied to measles and to scarlet fever, and that is that no such reduction of temperature, either in amplitude or in duration, as is obtained from these methods in the high temperature of other diseases, such as typhoid or pneumonia, takes place from their use in the pyrexia of measles and scarlet fever. This is easily accounted for. In both of these eruptive diseases, cold, whether in the shape of baths, sponging, or packs, has a different effect upon the skin which is the seat of an exanthema, from that which it has in diseases in which the skin is in a normal condition. The subcutaneous swelling and infiltration which is part of the eruption causes pressure upon the cutaneous capillaries and their nerves. These capillaries do not undergo the primary contraction under the influence of cold which occurs when cold is applied to healthy skin, nor does the secondary dilatation which follows the primary instantaneous contraction where the skin is normal occur in skin which is the seat of a measles or scarlatinal eruption. There is, therefore, not that interchange of cooled blood from the periphery and warm blood from the center which is so necessary a condition to the reduction of temperature by cold baths or packs. On the contrary, it has been observed that these agents when applied to a brilliant scarlatina cause a red rash to become violet and almost hemorrhagic and spotted in character, owing to stasis of the cutaneous circulation. For the same reason cold baths and cold packs in measles and scarlet fever inhibit perspiration both primarily and secondarily.

The writer refers to the importance of the sweat glands in aiding the skin to excrete from the body the toxic materials which are the essence of the disease in measles and scarlet fever, and even believes that the eruption itself is the conservative manifestation of the eliminative activity on the part of the skin; so that any method of reducing temperature which inhibits the eliminative and excretory functions of the skin defeats the most logical indication for therapy that we have in the acute infectious eruptive diseases. A gentle perspiration during the course of the eruptive stage of measles and scarlet fever is desirable, and all therapy should be directed toward its encouragement. Whenever a case of measles or scarlet fever with high temperature and other toxic phenomena shows but a scant and incomplete eruption, the author practices and advises the giving of a warm bath followed by a dry pack. The perspiration which ensues is generally successful in bringing out the eruption, while at the same time the temperature will sink materially and the curve be completed on a lower plane.

This is only done if with hyperpyrexia the eruption is incomplete. To reduce abnormally high temperatures (above 104°) in uncomplicated measles or scarlet fever, the author has used for some years the following method: The patient is placed in a bath with the water at a temperature of 80° F.; at the end of five or ten minutes, depending upon the case, the temperature of the water is raised to 90° by the addition of warm water. A bath at 80° for a fever patient with temperature of 105° is a cooling bath, and yet not cool enough to produce the evil effects upon the capillaries of the skin as above re-

ferred to. The subsequent raising of the temperature of the water ten degrees for ten minutes is equivalent to giving a warm bath after the cool one to the patient who has become accustomed to the water at 80°. Whatever ill effect the cool bath at 80° may have had upon the cutaneous capillaries and nerves is more than counterbalanced, and yet the temperature of the bath is still at 90°—much lower than that of the skin. The patient, when taken from the bath, is wrapped lightly in a sheet and covered lightly by a thin blanket. The temperature will be found to have declined from one and one-half to three or more degrees, and the decline persists longer than from any other method that the author has tried in these diseases. Moreover, the eruption is not diminished, the pulse is improved, sleep generally induced, and a gentle perspiration covers the whole body.

Practically one point of importance must not be forgotten. When the warm water is added it must be poured into the bottom of the bath tub. The reason for this is that if the warm water is poured on the top, it lies over the cool water, unless imperfectly mingled mechanically by the nurse. The patient would thus have the lower part of his body bathed in cold water and the upper part in warm or hot water. For this purpose the author has used in private houses a tin funnel with a piece of rubber hose long enough to reach to the bottom of the tub, and thus the warm water is delivered at the bottom of the bath. It then rises by its own lightness, as compared with the cold water, and is disseminated throughout the bath. For hospitals, a tub with a false fenestrated bottom can be made, and a permanent tin tube passed along one of the sides to the bottom, to accomplish more easily the same purpose. The patient should not be rubbed after such a bath, both because the warm additional water accomplishes all or more than the rubbing in the Brand bath, and for the further reason that friction is detrimental to the inflamed skin, producing a pseudodesquamation long before the subjacent skin is ready to cast off its inflamed covering. Such desquamated areas of skin are practically superficial ulcers.

Lesser degrees of hyperpyrexia are treated by sponging with water at 70°, to which one-third ordinary alcohol has been added. The alcohol in these cases acts the part of the added warm water in the bath, and counteracts the ill effects of the cold sponging upon the capillaries and nerves of the skin. It is unnecessary to again repeat the injunction against the use of friction upon the skin. On the contrary, the sponging should be liberally done with a large soft sponge, only the excess of water absorbed by patting the skin with a soft towel and the patient lightly covered as after a bath. Of these two methods the most efficacious in very high temperatures of scarlet fever and measles has been the tub, as above described.

ALBUMINURIC RETINITIS.

Fox in an article in the *New York Medical Journal* of June 25, 1904, gives the following advice as to the treatment of this state:

It is necessary, as soon as the condition is recognized, to place the patient under the care of a clinician especially skilled in the management of such cases, who should be informed of the nature of the disease from an ophthalmic standpoint. In the event of this being impossible, general treatment, such as is indicated in nephritis, should be begun. The attendant anemia will indicate the use of iron, but its constipating effect will necessitate considerable judgment, in order to select the least harmful preparation. In the author's opinion Basham's mixture is the most applicable, and should be given, one to two teaspoonfuls, every three hours. Strychnine sulphate, in doses of 1/60 to 1/30 of a grain, three times daily, may be advised. Gray powder (mercury with chalk) one to two grains, and gallic acid ten to fifteen grains, administered three times daily, are beneficial in absorbing the hemorrhages and exudate. Free purgation and diaphoresis are especially advantageous. The diet should be such as to exclude foods rich in albumen, such as peas, beans, and potatoes, lamb, beef, mutton, pork, veal, fried fish, gravies, ice cream, pastry, cakes, coffee, and spirituous or malt liquors. Woolen clothing should be worn the year round, and the patient should be removed to a warm and dry climate, if possible. Edebohls, of New York, has made the assertion that removal of the capsule of the

kidney is of great value as a curative measure in Bright's disease. Gradle, of Chicago, reports one case with marked ocular changes in which bilateral decapsulation was performed, and was followed by marked improvement in vision within a comparatively short period.

Locally very little can be done. Rest of the eyes is important, and the refraction should be carefully examined and corrected. The instillation of eserine is advised by some observers, but it serves only to lessen the irritability of the retina.

ON THE USE OF ALCOHOL IN CASES OF PNEUMONIA.

In a suggestive and carefully reasoned paper on pneumonia, read before the Liverpool Medical Institution by Dr. JOHN HAY, some strong views are expressed against the routine use of alcohol in cases of threatened cardiac failure during the course of that disease, supported by statistics and tables of somewhat startling character. He found that in considering a group of 150 cases, 47 of which were treated by himself without administration of alcohol, while the remaining 103 were treated by his colleagues, alcohol being given when the usually recognized indications for its administration arose, the mortality in the former group (those untreated by alcohol) was 16 per cent less than that in the latter; or, eliminating the cases admitted moribund from both groups, there was a difference of 15 per cent in favor of the cases treated without alcohol.

Dr. Hay states that he has taken great care to eliminate every source of error, and we must accept his figures as showing the difference he claims. At the same time there would seem to us to be one or two factors requiring elucidation, leaving out of consideration the smaller number of cases dealt with in the former group. First, although the average age of the two groups of cases is practically identical, it would have been of interest to compare the age mortality of the two groups in decade periods. Again, considering the group of 103 cases treated by his colleagues with alcohol there would seem to be three possibilities: first, that all the patients seen by them were treated with alcohol; secondly, that the cases not treated by alcohol were excluded, which would seem to be negatived by the statement that no selection was made; or thirdly, that this group includes cases to which no alcohol was given, in which case it would seem of interest to know what proportion these form of the total. These are points which require elucidation before the absolute value of the figures given can be made out.

Dr. Hay quotes the currently received views of the pharmacological actions of alcohol in support of his conclusions, viz., that it dilates the peripheral vessels and lowers the blood-pressure, exerting no direct action upon the heart itself except to enfeeble it in large doses. At the same time examples are not wanting of drugs which seem to exert actions in disease almost in defiance, so to speak, of their pharmacological actions. Strychnine itself, which Dr. Hay so rightly commends as "a good stimulating cardiac tonic," is a case in point, for according to many pharmacologists strychnine has no action upon the heart, producing its effects on the vascular system entirely through the vasomotor center. We hold no brief for the use of alcohol in pneumonia; in fact, there is little doubt that it is frequently administered in too large amounts and too early in the disease. At the same time we cannot but feel that with so large a variation as 15 or 16 per cent in so relatively small a group of cases the difference may be due to more than the one variant, especially when we remember that some statistics in other diseases—notably typhoid fever—certainly seem in favor of the use of alcohol. Dr. Hay's statistics are, however, a valuable contribution to a debatable question, and we may express the hope that his work will direct attention to the matter and stimulate others to make observations.—*Lancet,* June 11, 1904.

TREATMENT OF SUPPURATING ULCERS OF THE CORNEA.

TAYLOR writes in the *Pennsylvania Medical Journal* for June, 1904, an article in which he gives the following advice: He asserts that we may say of suppurating ulcers of the cornea that the majority of them never should have occurred. The inference from this would

be: the best time to treat corneal ulcers is before you have them. Many of us are familiar with a picture that might be drawn by any one engaged in ophthalmic practice. There enters your office a patient with one eye covered, or partly covered, with a dirty rag or handkerchief, not fit even to cover an ulcer of the foot, much less so delicate a structure as the eye. You remove the covering, again wash your hands, and examine the eye, finding the conjunctiva intensely injected, the eye painful and sensitive to light, and a suppurating ulcer with irregular excavated yellowish edges occupying some considerable portion of the cornea.

Inquiry reveals the fact that a week ago he was struck in the eye with a piece of coal, a stick, or some other missile, and that either nothing whatever has been done for the wound, or that it has been treated, or maltreated rather, by some home remedies or by some famous eye drops bought from a neighboring drug store. Inwardly wishing that the patient had seen fit to consult some one else, you proceed to do what you can for him. These are always serious cases, and no one is fond of treating them, though we often succeed in getting brilliant results under most adverse circumstances.

Now what should have been done with this patient in the first place had he only had sense enough to place himself under medical treatment when his accident first occurred? Those of us who live in mining or manufacturing regions find occasion to treat many injuries to the eye, and among them many superficial cuts and abrasions of the cornea, and these are not dreaded by the oculist if he only sees them early, and has the opportunity to care for them at once. The same general principles apply that apply to any wound. Perfect cleanliness and perfect quiet are needed to allow nature to restore the injured member. This can be best accomplished by flushing the eye with a boric acid solution or mild bichloride, by instilling a few drops of a one-per-cent solution of atropine, and applying a sterile compress bandage. The latter serves a twofold purpose: first, if properly applied it keeps the eye quiet and prevents the irritation which comes from the rubbing of the eyelid over the wounded cornea; and secondly, it serves to protect the eye from external infection.

The patient should be given a wash of boric acid and atropine to use at home, and should be cautioned as to the necessity for the utmost care in cleanliness in handling and treating the eye. If these lesser corneal wounds were treated at once in the simple manner just detailed there would be very few suppurating corneal ulcers. It is this simple prophylactic treatment that should be borne in mind by those not especially engaged in eye work, but who as general practitioners are often first consulted when the injury occurs.

But too often these injuries are neglected entirely and left exposed to infection from without until the suppurating process is well under way. What shall we do for them now? Very many remedies have been tried, and different ones have been found useful in the hands of different ophthalmologists. There is one remedy of more value than all others in arresting the suppurating process, and to this the author gives preference. He refers to the galvanocautery. When a patient presents himself with a bad-looking suppurating ulcer, its floor covered with dirty-yellowish exudation, the edges of the ulcer showing a tendency to extend, the eye generally red and painful, and with hypopyon commencing in the anterior chamber, that ulcer ought to be cauterized thoroughly. A thorough flushing with boric acid solution, instillation of cocaine, and a drop of fluorescine to mark the boundaries of the ulcer should first be used.

Then, with the electrode at red heat, the floor and edges should be thoroughly touched. The author does not believe in opening the chamber with the cautery as advocated by many, as he does not think it necessary, though he had two excellent results with accidental puncture. The eye should now be bandaged and atropine and mild antiseptic solution used three or four times daily.

The author does not mean by this that all ulcers should be treated with the galvanocautery. If seen when still small, even if the suppurating process has commenced, he frequently treats them by application of silver nitrate on cotton

probe to the entire surface of the ulcer as proposed by Dr. Callan some years ago. Sometimes curetting is necessary before applying the silver nitrate. He then gives the patient a solution of toluidin blue and atropine, uses the compress bandage, and enjoins perfect cleanliness.

THE RESULT OF A YEAR'S OBSERVATION OF GASTROPTOSIS.

STEELE writes in the *Pennsylvania Medical Journal* for June, 1904, on the results reached by treating this condition. He says that the question whether external mechanical support of the abdomen in gastroptosis tends to restore the stomach to its normal condition has grown to be of special interest since Beyea introduced his operation of shortening the gastro-hepatic ligament. Great confidence is felt by the writer in surgical interference in certain cases. However, the question can best be settled by a comparison of both methods of treatment after sufficient time has elapsed to thoroughly test each of them. Hence the inducement to publish this paper.

In nine cases the stomach was reëxamined by inflation after an average interval of fourteen months. During this time the external support, furnished by an abdominal binder, was constantly applied, and the results of the second examination in each case showed that the stomach was in exactly the same position at the end of the period as it was when the patient first came under observation. That is to say, the stomach was not permanently restored to its normal position in any case. Twenty of the twenty-eight patients wore a belt throughout the year. They invariably derived great relief from its use, being free from the sense of dragging and lack of support, and after the patient had once become accustomed to the abdominal binder it could not be discarded without nausea and return of the original symptoms.

In about one-fourth of the series no cause could be found for the anacidity and symptoms of gastric indigestion except gastroptosis. All of the patients improved and are now practically free from symptoms. The treatment employed was regulation of diet, mechanical support, the use of hydrochloric acid and nux vomica, and an occasional lavage. In one case the only symptom complained of was car sickness, which was entirely relieved by a belt. Here gastroptosis may be held directly responsible for the production of symptoms. In the remaining cases, amounting to three-fourths of the total number, the gastric disorder could be distinctly traced to neurasthenia, motor insufficiency in dilatation, chronic constipation, or passive digestion. Gastroptosis in these cases is probably a complication and a link in the vicious circle. That it is of much importance is indicated by the great relief that mechanical support afforded.

A number of cases have been examined and reëxamined after a year of constant wearing of the belt, and in none of them was the stomach restored to its normal position. External mechanical support furnishes such great relief in the majority of cases of downward displacement of the pylorus that it must be considered a very valuable help in the treatment of the condition.

In those cases in which the gastric symptoms are caused by uncomplicated downward displacement of the stomach, the results of medical treatment have been very gratifying. The fight was a long one, but all of the patients are practically free from gastric symptoms after a year. In other cases the prognosis depends on the dominant factor in the patient's condition, and this of course varies in each case.

BORIC ACID IN FOOD.

The Department of Agriculture has just issued a report giving the result of the experiments made last year in the influence of boric acid and borax on digestion and health. During a period of six months twelve young men submitted themselves to the observation of experts and gave a test of the effect of natural and preserved foods upon the system. The trial seems to have demonstrated that, while the human body can endure considerable quantities of boric acid in food without serious results, yet the steady absorption of the drug is unhealthful, and especially likely to work injury to persons of a delicate constitution. The report shows that boric acid taken in food is

eliminated from the system almost entirely by the kidneys, and that, as the maximum traces of it are found only three days after administration, the drug meanwhile is present in the circulation. It is not shown that the boric acid has any directly deleterious effect upon the kidneys, but anybody who realizes the prevalence of kidney disease under the unnatural strain upon those organs of the common mode of life, with its nervous tension and overeating, will feel it unwise to subject them unnecessarily to the work of eliminating from the body a chemical product which has no natural place there and with which they should not be called upon to deal. The department further finds that the continued use of boric acid, even in small quantities which produce no immediate palpable effects and are not noticeable to the taste, results in loss of appetite, bad feeling, fulness in the head, and distress in the stomach. Persons regularly using borated food tend to lose weight, and analysis shows that a smaller proportion of borated than of natural food is digested and made available for the body's uses.

The report is thoroughly conservative. It makes no sensational charges that food is poisoned by borax. It admits that articles of only occasional use may be preserved with the aid of boric acid without harm, and it concedes that meats shipped raw and not kept too long may without bad results receive an external coating of preservative, which excludes germs of decomposition without penetrating far beneath the surface. Nevertheless, it is emphatic in its warning against the habitual use of preserved foods, and in its demand that such foods be honestly labeled that the consumer may know what he is getting. This phase of the subject is particularly important. The consumer is now at the mercy of the producer. If he is an invalid, he may be seriously injured by borated foods which he buys, supposing them to be pure. He should have a chance to know whether he is getting natural or preserved food. If his constitution will stand the latter, well and good. If it will not, what is to him a poison should not be secretly and fraudulently administered to him. It may be that for the preservation of some articles boric acid is necessary, or at least preferable to the chemical conditions which would be developed without antiseptic properties.

The burden of proof on that point, however, rests upon the producer. He should be compelled to meet this obligation, to specify his use of boric acid and commend it to favor, and not allowed to sell goods under false pretenses. The report says: "It is undoubtedly true that no patent effects may be produced in persons of good health by the occasional use of preservatives of this kind in small quantities, but the young, the debilitated, and the sick must not be forgotten, and the safe rule to follow is to exclude these preservatives from foods for general consumption." This can only be done by compelling publicity in the use of the preservatives. Otherwise, in spite of all precautions, those who would be injured will unwittingly use them to the detriment of their health.—*Medical News*, July 2, 1904.

THE TREATMENT OF TUBERCULOSIS OF THE SKIN.

To *American Medicine* of July 2, 1904, HARTZELL contributes an article in which he says that the constitutional treatment of tuberculosis of the skin differs in no respect from that of tuberculosis of other tissues. The patient should have an abundance of fresh air, and to insure this he should pass a large part of his time outdoors. He should have a superabundance of highly nutritious, easily digested food; eggs and milk should form a large part of his diet. If it does not interfere with his digestion, he should take cod-liver oil; and the pure oil is far superior to any mixture, both as to palatability and therapeutic effect.

In lupus vulgaris, two local remedies are of especial value, viz., concentrated light employed after the method of Finsen, and the Roentgen ray. Although it is but a short time since the introduction of these agents, the evidence of their great usefulness is already overwhelming. The Finsen light is preferable when the area of disease is moderate in extent, but the length of time required for the exposures almost prohibits its use in very extensive cases. The Roentgen ray acts much more rapidly than light, and a much larger surface may be treated at each sitting; it is, therefore, preferable in cases

in which large areas are involved. When there is but a single patch of disease, of moderate extent, favorably situated, complete excision with the subsequent transplantation of a flap of sound skin is the most speedy method of treatment.

In verrucose tuberculosis, curettement followed by cauterization with caustic potash, or the application of a strong pyrogallol plaster, is usually followed by very satisfactory results. If the patient objects to the scraping and cauterization, the Roentgen rays may be successfully employed.

Lichen scrofulosorum responds promptly to treatment with cod-liver oil given internally and applied locally. Crocker finds that inunctions with vaselin are quite as effective as the cod-liver oil, and much less disagreeable.

Scrofulous ulcers should be made and kept as nearly aseptic as possible, and some stimulating ointment, preferably some one of the mercurial ointments, applied twice or three times a day. The application of dry powder of iodoform, europhen, aristol, or other iodine compounds is frequently of decided value.

THE RESULTS OF TREATMENT OF TWO HUNDRED CASES OF ACUTE LOBAR PNEUMONIA.

In the *Lancet* of June 11, 1904, HAY states that the following treatment was carried out in this large number of cases:

The drugs used in order to prevent or to counteract cardiac failure were practically four: strychnine, digitalis, caffeine, and ammonium carbonate. Strychnine and caffeine are recognized as good stimulating cardiac tonics. Digitalis is a more purely cardiac tonic. In the administration of strychnine one must be careful neither to begin too soon nor to give too large doses, for it must be remembered that there is only a certain definite reserve force in each heart that can be called upon. The main object must therefore be to spare the heart from every strain and only to use cardiac stimulants when absolutely necessary. Both strychnine and digitalis the author prefers to administer hypodermically, and when given in sufficient doses they will obtain from the heart a large proportion of its possible energy. In alcoholic cases more especially it is advisable to give digitalis hypodermically because, as O. T. Osborne points out, digitalis is absorbed with great difficulty from the stomach in such patients. Digitalis slows the heart and simultaneously increases the force of its contraction, tending to raise the blood-pressure by contracting the peripheral vessels.

As an example of the value of digitalis, in contradistinction to alcohol, in its action on the heart Sir Samuel Wilks relates a very suggestive case. A young lady, for many years the subject of mitral disease, had been for some time growing worse, until at last she "took to her bed," and he was asked to see her. "It was a matter of formality, as she was thought to be dying. She was lying in bed gasping, with a fluttering heart and an almost imperceptible, irregular pulse, and semiconscious. She was being plied with brandy in order to keep her alive. The two medical men who were with her did not perceive that they were poisoning her, but nevertheless assented to the author's strong wish to stop the spirit. This was done, and 15 drops of tincture of digitalis was given every hour for a short time. After a few doses the frequency of the pulse was lessened. She breathed better and was more sensible. She then continued the remedy to a less amount. She rapidly improved."

Strychnine stimulates the cardiac center, cardiac ganglia and nerves, and also in a marked degree the respiratory center. One-fiftieth of a grain is given every four hours if any signs of cardiac exhaustion are observed, and, if necessary, this dose is increased to 1/25 of a grain. Both camphor and musk, more especially the latter, must be looked upon as valuable cardiac stimulants, but the cost of musk is so great that it is impossible to make use of it. If given at all, doses of from five to ten grains should be administered every few hours. Ammonium carbonate has been found chiefly of use in those cases associated with bronchitis. It should be administered in large doses—ten grains every four hours, and occasional doses of 20 or 30 grains in addition. It rarely produces emesis and is usually followed by very free expectoration. The author first became convinced of the value of these large doses as an expectorant and cardiac stimulant in the case of a woman suffering from marked emphysema and bronchitis. She was propped up in bed,

breathing rapidly, tossing about, distressed, and very cyanosed. Her heart was dilated and her pulse was irregular. Her lungs were full of râles and rhonchi. For some days she had been taking an ordinary expectorant mixture with very little benefit. A half-drachm dose of ammonium carbonate was ordered, to be repeated in an hour if it did not produce emesis. Following the second dose she began to expectorate large quantities of muco-pus and was greatly relieved. Since then the author has frequently tried these large doses and generally found marked benefit follow their exhibition, not only in cases of bronchitis and emphysema, but also in pneumonia associated with bronchitis in which the expectoration tends to be profuse and of a bronchitic character. Caffeine can be administered either as strong coffee or as the citrate. It acts as a stimulant cardiac tonic, as a nervine tonic, and also as a cerebral stimulant. This latter property would make one hesitate to give it when the insomnia is troublesome. Its action on the kidneys may help to eliminate toxic matters.

There is one form of treatment to which the author refers in conclusion—namely, the application of ice-bags to the abdomen, so strongly recommended by Dr. Barr. These were applied in some twenty cases and with benefit. The cold applied to the abdomen steadies the temperature, and by acting on the splanchnic area improves the tension and volume of the pulse. It increases the depth of the respirations, and thus greatly assists the heart by increasing the force of the respiratory pump. It also, according to some authorities, distinctly increases the value of digitalis in pneumonia by tending to bring the circulation into equilibrium.

If one determines to use the ice-bag it is most important that it should be firmly fixed, otherwise it will tend to slip down on the groin and be a source of great discomfort. The sensitive groins should be protected with wool or lint. A medical man, a member of the Liverpool Medical Institution, has mentioned to the writer the comfort and benefit which he received from the ice-bag during an attack of pneumonia, and he also referred to the discomfort which he experienced until his groins had been protected and the ice-bag firmly fixed in its correct position.

THE FEEDING AND CARE OF CHILDREN AFTER THE FIRST YEAR.

To the *Archives of Pediatrics* for June, 1904, FREEMAN contributes a paper in which he gives sound advice. He first asks the question, What indications have we at the beginning of the second year for any change of food from a simple milk diet? There is a demand from the mother for other food, often for meat. There is the frequently quoted opinion that as soon as a baby has its teeth it should be given something to chew. This claim may, however, be well answered by the statement that the six incisor teeth a child usually has at the beginning of the second year are not chewing teeth, and it is not until six or nine months later that a child is supplied with teeth intended to grind food into small particles. At fourteen months a child usually has only its eight incisor teeth, while at eighteen months it has only four molars. It is only at eighteen months then that a child with normal dentition is able properly to grind food. It must be agreed that there is but little indication for a change in food, and that a simple milk diet may often be continued into the second year with advantage. There are, however, certain benefits in an enlarged dietary at this time. A child must be gradually accustomed to take its food from a spoon instead of from a bottle preparatory to taking solid food, and again at this time many children suffer from constipation, which may be somewhat relieved by a change in diet.

In choosing the first food to be added to the milk diet the matter of its nutritive value need not be particularly considered, since the 40 or 50 ounces of cow's milk already fed furnishes sufficient nourishment. The food then should be such as can be eaten with a spoon, and that will not displace the milk but render it more, rather than less, digestible. This requirement seems best filled by one of the many cereals, a finely ground or strained cereal thoroughly cooked being used first. Thus about 4 ounces of a thick strained oatmeal gruel or a wheat meal may be added to the midday meal, and half an ounce of orange juice may be given also. It is a safe precaution to add half an ounce of orange juice daily to the dietary of all children of six months or over. The die

tary at twelve months will consist then of 8 ounces of milk (pasteurized) at 6 and 10 A.M., and 1, 5, and 9 P.M., to which is added at one o'clock 4 ounces of gruel and half an ounce of orange juice.

DIET OF THE SECOND YEAR.

	6 A.M.	10 A.M.	1 P.M.	5 P.M.	9 P.M.
At 12 months.	8–10 ounces milk.	8–10 ounces milk.	4 ounces gruel; 8 ounces milk; ½ ounce orange juice.	8–10 ounces milk.	8–10 ounces milk.
At 15 months.	8 ounces milk; 6 ounces gruel.	8 ounces milk.	Soft-boiled egg; 8 ounces milk; ½ ounce orange juice.	8 ounces milk; 6 ounces gruel.	8 ounces milk.
At 18 months.	8 ounces milk; 6 ounces gruel.	8 ounces milk.	4 ounces clear soup; soft-boiled egg; 8 ounces milk; ½ ounce orange juice; bread and butter.	8 ounces milk; 6 ounces gruel.	8 ounces milk.
At 21 months.	8 ounces milk; 6 ounces gruel; soft-boiled egg; bread and butter.	8 ounces milk.	6 ounces clear soup; ¼–1 ounce scraped beef; ½ ounce orange juice; bread and butter.	8 ounces milk; 6 ounces gruel; bread and butter.	8 ounces milk.

This diet may be continued for some time, but usually by the fifteenth month a soft-boiled egg may be given each day with the one o'clock feeding. This furnishes a nourishing, easily digested proteid food. The cereal is now transferred to the 6 A.M. and 5. P.M. feedings, and it may be a more coarsely ground cereal. The child thus gets three meals each day with two additional fedings of an 8-ounce bottle of milk each at 10 A.M. and 9 P.M.

For the next six months no change need usually be made in this dietary, except, perhaps, the addition of 4 ounces of clear soup, beef, mutton, or chicken, to the midday meal, with a slice of dry bread and butter. It may be noted that no mention has been made of beef juice which is often given at this time. Beef juice should not form a part of the dietary of any normal healthy child, for it has scarcely any food value, as it is composed for the most part of extractives and water. It is, however, a good tonic and a useful addition to the dietary of a child that has a poor appetite or is anemic or convalescing from some acute disease. Its use should be reserved to cases that furnish some such indication.

At about the twenty-first month some meat may usually be added to the midday meal with advantage. It should be given first in moderate amount and in the most digestible form. Scraped beef from the inner portion of a rare broiled steak which is free from fat is the best form, and a heaping tablespoonful may be given at first, and the amount soon doubled. When this is given with bread the child should be instructed systematically how to chew. At this time the soup may be increased to 6 ounces and the milk dropped, for as a rule milk is not well digested when given at meals with meat. The amount of meat given should be carefully restricted, as many children, especially pale children, are often given too much meat. This addition of meat then completes the dietary for the second year, and the articles of food mentioned are all that should ordinarily be given at this period.

EYE-STRAIN.

The *Edinburgh Medical Journal* for July, 1904, in referring to eye-strain as a factor in disease and its relief by glasses, gives vent to the following sensible views apropos of some American authors who believe that this cause may produce almost any set of symptoms. It says that to a thoughtful mind a curious feature of medicine, and doubtless of other sciences also, is the effect of fashion and habit in reference to methods of treatment, to theories of disease, and what not. Some one discovers a principle which may prove, on investigation, to be of far wider application than at first was dreamed of, or suggests a method of treatment for some malady, possibly arrived at empirically or even accidentally. Its use is extended to other diseases, in a blundering fashion sometimes, after careful reasoning at others; and it is found by its means that two diseases, not hitherto supposed to be distinct, are in reality quite separate entities, reacting in diverse manners to the new method; or again, two separate and dissimilar diseases are found, by their analogous reac-

tion, to have really one common basis. That which was simple becomes complex; that which was complex becomes simple.

At a later stage the theory or the drug, having been tested for all forms of evil, has been "boomed," as the phrase is, in season and out of season, having been applied here, there, and everywhere, is found to have an area of suitable application quite other than the promised "Promised Land" of the visionary's speculation visible from the Pisgah of inexperience. Then, to change the metaphor, the reaction comes, and the theory or agent is discredited and looked upon more and more coldly; and a theory of ailment, or a means of cure, which within proper limits is of real value, is totally relegated to limbo and black night, because it has failed to fulfil the extravagant and unreasonable hopes which were at first embraced regarding it.

These thoughts were suggested to the writer by noting what is now being said in certain quarters regarding eye-strain. Eye-strain and its results, or the existence of an error in refraction or position of the eye, and the reaction in the system consequent upon the efforts made to correct it, has had an interesting career. Who first discovered its malignant powers does not greatly matter—there it is. Neglected for a time, it after a while "caught on," and then in certain quarters and by certain physicians it was made the scapegoat for everything and anything. The theory was (or is) that by reason of the constant efforts to correct some optical error so much waste of nerve force is incurred that many morbid reflexes are set up. If the exponents had been content to be moderate, and to attribute to eye-strain headache and similar symptoms, they would have carried with them the good opinion of all sound practitioners, but the list of "convictions" recorded against the prisoner has been swelled to an appalling bulk. We are told, for example, in a book by Ranney (New York), one of the most zealous of the zealous, that diabetes is at times due to eye-strain. Gould (Philadelphia), another John Baptist of eye-strain, considers that it may be to wear and tear produced by eye-strain that the tubercle bacillus owes its chief chance of success in attack. Another writer attributes moral delinquencies to astigmatism.

A very interesting discussion, to judge from the published reports, took place recently in the New York Academy of Medicine, the subject of which was, "The Eye in its Relation to Functional Nervous Disease." The first paper was by Dana, who divides eye-strain into two varieties: (1) an effort to overcome errors of refraction or of muscle balance, and (2) an effort to supplement cortically the imperfection of the images received by a defective eye. This latter kind of eye-strain, which is really a brain-strain, was in his view the only kind of strain which could do any harm. We do not say we altogether agree with this statement, but with the following sentence we are certainly in accord: "Glassing was enormously overdone as well as underdone, and had become in a way a real psychosis." In several of the other papers, too, there was made a strong plea for more common sense in the view taken in regard to eye-strain than prevailed in some quarters. In dealing with chorea, Dr. Sachs was very trenchant; from his personal experience he did not know, he said, of a single case in which the epileptic seizures had been altogether inhibited or even diminished in number by the wearing of glasses, by the cutting of muscles, or by any other ocular measures which had been adopted.

From the frank expression of these views, contrasting so strongly with those mentioned previously, it appears, then, as though the palmy days of eye-strain were beginning to decline. It is very necessary that this should be so, for the claims made by faddists on its behalf have been absurdly extravagant. It is in America almost entirely that these faddists and their pretensions have flourished, and now in America even the axe is being laid to the root of the tree. What we would urge is, that we have in eye-strain, if that be a suitable expression, a source of reflex irritation and loss of nerve force capable of doing much functional injury to an unstable organ; we ought to recognize this perhaps more frequently than we do. But on the one hand we ought not to be led astray into thinking that it is the root of all evil, while on the other we must not abandon the recogni-

tion of its existence as a very serious and somewhat frequent evil, because its enthusiastic friends had "puffed" its merits unwisely in the past. The frog is still a good frog, although it has failed to make itself look like a bull.

FURTHER OBSERVATIONS ON THE THERAPEUTIC VALUE OF RADIUM AND THORIUM.

In concluding an article on this subject in the *British Medical Journal* of June 11, 1904, MACLEOD states that in his experience the therapeutic value of radium bromide, so far, may be thus summarized:

Its chief utility is in the treatment of rodent ulcer, and in the case of small rodent ulcers it acts almost like a charm. In rodent ulcers of a diameter larger than that of a shilling treatment by the *x*-rays is more practical, as the whole of the ulcer can generally be exposed at once and not piecemeal, as with the small quantities of radium at present at our disposal. In some cases of rodent ulcer, however, which have been subjected to a long series of exposure to the *x*-rays, the rays seem to lose their effect and the healing process becomes stationary; then exposure to radium may be used with advantage and the healing again stimulated. With regard to epithelioma the writer's experience is disappointing, but it is insufficient to base any definite conclusions upon. He is inclined to regard it of little value, and to urge again the necessity of immediate excisions and the postponement of treatment by the various radiations till after operation. In the case of cancer of the uterus further experience is necessary before any definite statement can be made; it is possible that the radium may prove a useful adjunct to the surgical treatment.

In lupus vulgaris radium causes the disappearance of the granuloma and a replacement of it by healthy scar tissue; but except in very small lesions this treatment is not at present practical. It is a useful adjuvant to the Finsen light and *x*-rays, however, as it can be applied to positions which are difficult to get at, such as about the eyelids and mucous membrane of the nose. In the verrucose type of lupus vulgaris, however, it is superior to the Finsen light.

In lupus erythematosus its value seems to be negligible.

The writer has tried the effect of thorium on two cases of lupus vulgaris. A quarter of a pound of hydroxide of thorium was sealed up in a flat rubber bag. It was thought that as the thorium was radioactive, though its activity was only 1 in 1,000,000 of that of radium, still the large quantity used and long exposure might have an appreciable effect. In one case in which it has had an extensive trial, namely, a case of tuberculosis cutis in which there was an ulcerated patch about two inches in its long diameter, situated above the left heel in a young girl, the thorium did not seem to produce the slightest effect, even though it was worn bandaged over the part every night, while the girl was sleeping, for a fortnight. She was then seen, and the bag applied each night for another fortnight, and so on. It did not even set up an inflammatory reaction, and it produced no impression in reducing the hyperemia or in healing up the lesion. Nor did it seem to be the rubber of the bag which prevented the thorium rays from causing changes in the diseased tissue, for during one of these fortnights the bag began to leak, and the ulcerated surface was found to be dusted over with thorium each morning without any appreciable effect.

THE TREATMENT OF PULMONARY TUBERCULOSIS.

In *Medicine* for July, 1904, PREBLE publishes an article in which he reminds us that there is scarcely a drug in the Pharmacopœia, scarcely a method, physical, electrical, hydropathic, or mechanical, which has not been tried again and again in the treatment of pulmonary tuberculosis, and yet out of all this careful and conscientious effort no drug or method has emerged triumphant. The only thing upon which all are now agreed is that the patient must be supplied with all the necessaries of life in liberal quantities and of the best qualities; that the energies of his body must be conserved and strengthened in every way, in order that the healing power inherent in us all may bring about a cure. Drugs and other therapeutic means are to be employed to combat individual symptoms as they arise,

but the disease itself must be left to nature.

The first and most essential thing is to supply the patient with good, pure air. The author believes that, when it is possible, the patient should be removed to some one of the health resorts, where the climatic conditions have proved favorable to these cases, but unfortunately a very large percentage of tubercular patients are not able to stand the expense of such a change. One of the most important new facts in the treatment of this disease is that the patient can be supplied at home with the necessary air. Nothing was more hopeless than these cases so long as it was believed that a change of climate was absolutely essential. We realize now that much can be done in the way of supplying an abundance of air, even in so crowded and otherwise undesirable a place as Chicago. If it can be done there, it can be done anywhere. This is not possible in all parts of the city, but there are, fortunately, many places available to those of even the slenderest means where an abundance of fresh air can be supplied. There are many outlying districts easily reached by a single car fare where the necessary open space can be obtained, and if the family refuses to remove to such a neighborhood, and persists in remaining in a crowded, ill-ventilated flat, the case is practically hopeless.

The family should take either some flat or house where there is a back yard, in which a tent, or still better, a board shack, may be erected for the patient. Such a shack can be built at very small expense. It should be so proportioned as to contain about 1000 cubic feet of space, and should be built of unmatched boards, so as to provide an abundance of ventilation, even when the weather is such as to require the closure of most or all the windows. The floor should be raised from the ground sufficiently to secure dryness, and the sides should be enclosed for about four feet from the floor. Above this line the walls should be of windows, arranged in such a way that they swing out from hinges at the top. The advantages of the arrangement of the windows are that they are inexpensive, and can all be open at once, even in case of rain. Opening outward, they serve as a canopy, and prevent the rain beating in, in a way which sliding windows do not. The roof should be rainproof.

In such a building when the windows are open, the patient is practically out-of-doors, and yet can be easily protected from rain, and, if necessary, from direct draft. Furthermore the patient can be gradually accustomed to the exposure if that is necessary. There is no doubt that the doctor will often meet with opposition from the family, which can only gradually be overcome as the improving condition of the patient allays the fears and traditional opposition which many people show to an abundance of air.

The furnishing of this house should be of the simplest. A rug by the bedside, a table, a chair or two, and the bed. The bed should be a simple iron bed, with comfortable mattress and springs. The covering should suit the temperature, and be so arranged as to prevent the patient becoming uncovered during sleep. A sleeping bag or some similar device may be employed for this purpose. The night-clothing should be of flannel, certainly so if the patient is sweating at night.

It is obviously useless to attempt to heat such a structure as the one suggested, and usually the patient will require nothing more than an abundance of clothing. Even in the coldest weather nothing more than a hot-water bag is required. The patient should look upon this house as his home, and here he should spend his nights and those portions of the day which are spent indoors.

CONGENITAL DISPLACEMENT OF THE HIPS.

After commenting upon the favorable results by the Lorenz method of bloodless reduction in congenital displacement of the hips, obtained at the Hospital for Ruptured and Crippled, New York, SMITH *(Clinical Journal,* March 9, 1904), in the light of his own experience, suggests some rules by which the serious accidents reported by some surgeons may be avoided.

The operation by manipulations should be practiced only in favorable cases. In all cases there should be a preliminary treatment by exercises and stretching. In attempting reduction there should be avoidance of severe force. The subcutaneous division of adductors, together with

rupture of the deeper fibers, should be substituted for Lorenz's method of hand-sawing. A simple iron splint passing across the buttocks will hold the limbs in the required position, will allow observation of the condition of the parts, and will permit of readjustment if desirable. The splint, moreover, can be applied in a few minutes, whereas the use of the plaster casing necessitates the patient being nearly an hour longer under the anesthetic.

INCONTINENCE OF FECES TREATED BY SUBMUCOUS INJECTION OF PARAFFIN.

BURGESS *(Lancet,* March 12, 1904) in two cases of incontinence of feces has obtained great benefit from the submucous injection of paraffin into the lower portion of the rectum.

One patient, a male aged fifty-eight years, had incontinence following two operations for fistula *in ano.* On examination no trace of the sphincter could be found, and the anus extended in a posterior direction almost to the coccyx and was surrounded by several dense scars, the results of former ulceration. Under local anesthesia paraffin was injected, in several places, into the submucous tissue of the rectum. The melting point of the paraffin was 111° F., and at two sittings a total of 52 cubic centimeters was introduced.

The second patient was a boy aged seven years who had complete incontinence of feces, associated with a large rectal prolapse, dating from infancy. The anus was abnormally large and lax and easily admitted four fingers, while there appeared to be an entire absence of sphincteric action. Six cubic centimeters of paraffin was injected at the first sitting with some improvement. On a subsequent occasion 27 cubic centimeters was introduced in three successive tiers, each tier consisting of three nodules of 3 cubic centimeters each. The prolapse has never recurred, while the incontinence was considerably improved. It finally was relieved completely by narrowing the enlarged anus by a plastic procedure similar to Tait's flap-splitting operation for the repair of an incomplete laceration of a female perineum.

CHRONIC NEPHRITIS—SURGICAL TREATMENT.

The surgical treatment of Bright's disease was discussed at a meeting of the Chicago Surgical Society and the Chicago Medical Society, held January 13, 1904, and reported in the *Medical News* of February 27, 1904.

ELLIOTT stated that the statistics available to date showed the total number of cases of true Bright's disease operated upon as 76. Of these 36 died, 26 were improved, 12 were unimproved, while 2 were made worse. Of the 36 fatal cases 13 died within the first week, and 20 during the first month following operation. These statistics demonstrate that 65.80 per cent of cases operated upon for the various forms of Bright's disease failed to be favorably influenced.

Cases of chronic interstitial nephritis are not adapted to surgical treatment, the only exception to this rule being the comparatively rare circumstance of an acute nephritis, engrafted upon a chronic interstitial lesion, in which event the acute inflammatory attack might induce the necessary element of intracapsular tension.

The mortality of 76 per cent in operated cases of advanced chronic interstitial nephritis is almost a prohibitive one, and the chances of prolonging life much less promising than those afforded by medical treatment. Experience to date seems to indicate that cases of chronic parenchymatous nephritis in young subjects, especially in those cases following acute infective nephritis, offer the most favorable material for operation. Statistics of operations in parenchymatous nephritis indicate that a competent heart is the most important consideration influencing the decision to operate.

Chronic Bright's disease and its development constitutes a disease of the whole system. The general edema or anasarca in chronic renal disease, in many instances, is in great measure a cardiac dropsy, brought about by advancing myocardial degeneration, and the case is apt to take on those cardiac aspects which virtually convert the therapeutic problem into the question of sustaining a failing heart. The results of experimentation demonstrate that within a period of 3½ months after decapsulation, a new, and in some

cases a tougher, fibrous envelope has taken the place of the original capsule. This fact probably accounts for the many relapses and deaths after that period, in operated cases, and in chronic cases, at least, it narrows the prospect of improvement to a period of months.

From a standpoint of the ophthalmologist SUKER presented statistics which prove that decapsulation of the kidney from chronic Bright's disease is absolutely contraindicated whenever such patients have a retinitis or a neuroretinitis albuminurica, with or without retinal hemorrhages.

ANDREWS reported four cases of decapsulation of the kidneys for Bright's disease. Three of the patients were unimproved by the operation; the fourth, one of intermittent hydronephrosis and nephritis, was operated on two months ago. There was relief from all of the symptoms by a combined nephropexy and complete decortication of one kidney, but this was due probably to the nephropexy rather than to the decortication.

OCHSNER operated on seven apparently hopeless cases of advanced nephritis; five died, and of the two who survived, one patient, thirty-six years of age, operated upon six months ago, is well. The second, a man fifty-one years of age, an alcoholic, with marked edema and signs of advanced interstitial nephritis, is still alive, although the speaker thought that he would die soon.

FERGUSON, after an experience of twenty operative cases, has formulated the following indications for surgical intervention in Bright's disease: In all cases of tender or floating kidneys the kidneys should be decapsulated and suspended. For floating kidneys presenting marked evidence of Bright's disease, decapsulation is indicated, as it is in nephritis itself.

RIES narrated an interesting experience with a case of hematuria in which he resorted to decapsulation. At a subsequent operation it became necessary to remove the kidney. The newly formed fibrous tissue about the capsule was about as thick as a little finger. In over six hundred sections made from the excised kidney but one anastomosis was found, which, however, was not a direct anastomosis of kidney tissue. This disproves the theory that the success of decapsulation is due to the formation of anastomoses.

BRUNSON reported a case of chronic Bright's disease in which the patient fully recovered from the effects of renal decapsulation, but finally died of Bright's disease.

VOLVULUS OF THE OMENTUM.

STEWART (*Journal of the American Medical Association,* March 19, 1904) has collected nine cases of volvulus of the omentum, seven of which were males and two females, their ages ranging from thirty-three to seventy-nine years. The omentum was connected with a hernia in five of the seven cases in which hernia was present. The symptoms were acute in all and pointed to some serious intraperitoneal lesion. The diagnosis was not made in any case; two were diagnosticated strangulated hernia, four appendicitis, one irreducible hernia, one intraperitoneal abscess, and one suppurating, or ovarian cyst.

The tumor could be palpated in five; in four no tumor could be felt. There seems to be no way by which a diagnosis may be reached. A movable, doughy tumor coming on quickly after attempts to reduce a hernia is suggestive of omental torsion. A count of leucocytes may contribute in differentiating from abscess. In all of the cases the importance of immediate operation was recognized.

The amount of the omentum involved varied from a portion the size of a large fig to the entire omentum, forming a mass the size of a man's head. The tip of the omental mass was fixed in six cases, thus forming two supports between which the omentum might turn. The cause of torsion was the forcible attempt to reduce hernia in four cases, coughing in one, and unknown in four.

In those cases of hernia in which there have been symptoms of strangulation, and in which only a strand of omentum is found in the sac at the time of operation, Weiner insists on a thorough investigation of the intra-abdominal portion of the omentum for torsion.

These cases furnish additional proof that strenuous efforts to reduce hernia are exceedingly hazardous.

A SUBSTITUTE FOR RUBBER GLOVES.

MURPHY *(Journal of the American Medical Association,* March 19, 1904) has found that a four-, six-, or eight-per-cent solution of gutta-percha in benzine, when applied to the hands of the surgeon or the skin of the patient, will seal these surfaces with an insoluble, impervious, and practically imperceptible coating—a coating that will not allow the secretions of the skin to escape, and will not admit secretions, blood, or pus into the crevices of the skin. At the same time it does not impair the sense of touch nor the pliability of the skin. A similar solution in acetone also meets most of the requirements.

Murphy's routine method of hand preparation is as follows: First, five to seven minutes' scrubbing with spirits of green soap and running hot water; second, three minutes' washing with alcohol; third, when the hands are thoroughly dried the gutta-percha solution is poured over the hands and forearms, care being taken to fill in around and beneath the nails. The hands must be kept exposed to the air with the fingers separated until thoroughly dry. The coating is very thin and can be recognized only by its glazed appearance. It will resist soap and water, but is easily removed by washing in benzine. The hands can be washed in bichloride or any of the antiseptic solutions without interfering with the coating or affecting the skin. If the operations be many, or prolonged, the coating wears away from the tips of the fingers, but is easily renewed. For the remaining portion of the hands one application is sufficient for a whole morning's work.

The four-per-cent solution of rubber wears better on the tips of the fingers in handling instruments, sponges, and tissues than the acetone solution.

For the abdomen the acetone solution has the advantage, as it dries in three to four seconds after its application, while the benzine solution takes from three to four and a half minutes to make a dry, firm coating.

The preparation of the patient's skin consists in five minutes' scrubbing with spirits of green soap, washing with ether, followed by alcohol. The surface is then swabbed over thoroughly with the benzine or acetone solution.

The gutta-percha solution is prepared by dissolving the pure gutta-percha chips in sterile benzine or acetone. These solutions do not stand boiling, as this impairs the adhesiveness and elasticity of the coating.

EXTRA-UTERINE PREGNANCY.

RUNGE (*Archiv für Gynäkologie,* Bd. lxx, Heft 3) discusses the statistics of 233 cases of extra-uterine pregnancy occurring in Gusserow's clinic during the last nine years. They were made up of 108 cases of hematocele after extra-uterine pregnancy, 73 tubal abortions, 47 tubal ruptures, and 5 intact tubal pregnancies. Of the 47 ruptures, 39 were into the abdominal cavity, and 8 into the broad ligament. Of the 108 hematoceles, 17 were complicated by suppuration or gangrene. The average age of the patients was thirty years and nine months; 33 of the patients were primiparæ, and 195 multiparæ. The extra-uterine pregnancies occurred in the latter at an average age of four years after the last intra-uterine pregnancy. In a large number of the patients the cause of the condition could be clearly traced to a pathological confinement, or to chronic gonorrhea.

Hemorrhage, the most frequent symptom, occurred in 192 cases, the hemorrhage being uterine. The average time of its appearance was forty days after the last menstruation. The bleeding is usually slight and repeated, and is due to uterine contractions separating the decidual membrane from its walls. Other symptoms are pain, disturbance of micturition and defecation, faintness, dizziness, and discharge of decidual membrane. Usually the uterus was enlarged. Extra-uterine pregnancies, as a rule, terminate during the first or second month. Abortions occurred 31 times during the first month, and 23 times during the second month; ruptures occurred 7 times during the first month and 22 times during the second month.

Operative treatment for abortion or rupture need only be resorted to when life is in danger, when the tumor is distinctly enlarging, when the general health is getting progressively worse, or the mass not getting smaller, or finally, after prolonged temperature elevations. Laparot-

omy is the operation of choice for either abortion or rupture, drainage in most cases being unnecessary. Where possible, placenta and germinal vesicle should be removed without rupture. Coagula should be removed wherever they can be reached easily; decomposition indicates thorough cleansing of the abdominal cavity.

Hematocele should be treated conservatively wherever possible. If operations are necessary they should be through the posterior vaginal vault. Laparotomy is indicated only where the tumor is very large, or the tumor not accessible.

Of the 73 abortions, 36 recovered with conservative treatment, 36 after operative treatment; one died after operation. Of the 47 tubal ruptures, 5 recovered without operation, 31 with operation, and 11 died after operation.

METRORRHAGIA DUE TO RETAINED PLACENTA.

Since the introduction of antisepsis during labor and abortion, SOREDEY *(Journal des Praticiens,* Jan. 2, 1904) has observed that the retention of placental débris is not always accompanied by the phenomena of infection. Fragments of the after-birth may remain in the uterus for several weeks, or even months, without undergoing serious alterations. As a rule the only symptom is a persistent rebellious and indefinitely prolonged metrorrhagia. Since the occurfence of a miscarriage in these cases either is not recognized, or is purposely concealed, an erroneous diagnosis of hemorrhagic metritis is usually made and improper treatment instituted.

The hemorrhages in themselves are sufficiently characteristic to make the diagnosis easy. Their uninterrupted prolongation and recrudescence, even during repose, occurring in a woman otherwise well, and whose uterus previously has been healthy, should arouse a suspicion of the hemorrhage being due to retained placenta. Especially significant is the occurrence of the metrorrhagia after a more or less prolonged interruption of menstruation. These symptoms, taken in conjunction with the objective signs of early pregnancy, establish the diagnosis, even in the absence of a subjective history.

Curettage should be performed as soon as the diagnosis is made. Usually the hemorrhage is arrested immediately, but a moderately firm gauze pack and a vaginal tampon should be introduced for the first twenty-four hours to guard against a recurrence of bleeding. In the presence of infection the writer employs a drain saturated with a mixture of one part of creosote to three of glycerin. This should be renewed daily for several days and the uterine cavity cleansed with hydrogen peroxide or a two-per-cent solution of chloride of zinc. Three weeks in bed completes the cure.

TREATMENT OF ASCITES WITH OMENTOPEXY.

After reviewing the experimental researches which led up to the establishment of Talma's operation of omentopexy, TURGARD *(Annales de la Polyclinique de Lille,* Nos. 5 and 6, 1904) concludes that it is possible and easy to establish a communication between the blood of the portal system and the vena cava in cases where the portal vein has been obliterated; that the entrance of portal blood into the general circulation is not necessarily fatal to animals; that so far as the liver is concerned the operation has no deleterious influence on its nutrition and function. In man a direct anastomosis between the veins may be established. Vidal performed a lateral anastomosis between the vena cava and the portal vein for hematemesis. The operative and immediate results were good, but the patient died four months later of general venous infection of intestinal origin. The more popular method is indirect anastomosis, which may be done either by sewing the omentum to the liver and diaphragm, by sewing the omentum to the skin of the abdominal wall, by fastening it between the outer layer of the peritoneum and the muscular part of the abdominal wall, or only to the surface of the parietal peritoneum. The two latter methods are employed most frequently. Drainage is unnecessary. Local anesthesia is often sufficient for the operation. Of 108 cases which the author has collected, 58 were improved or cured, 14 were not improved, and 36 died. The results in hypertrophic cirrhosis seem to have been somewhat better than in atrophic; 66 per cent of the former recovering and only 45 per cent of the latter.

RECURRENT DISLOCATION OF THE PATELLA—OPERATIVE TREATMENT.

KROGIUS *(Centralblatt für Chirurgie,* March 5, 1904) reports a case in which the patella was dislocated outward whenever the patient flexed the knee. In order to overcome this condition he devised a new operation, which consists of: (1) A curved incision along the outer side of the patella and exposure of the anterior surface of the joint by dissection. (2) A vertical incision through the iliotibial band and fibrous capsule, but sparing the synovial membrane, from a point a finger-breadth above the patella to the tuberosity of the tibia. (3) The formation of a longitudinal flap the width of two fingers along the inner side of the patella, by making two parallel incisions similar to the above vertical incision. (4) Closure of the longitudinal defect caused by raising the flap along the inner side of the patella. (5) Displacement of the flap across to the outer side of the patella and securing it by catgut sutures to the edges of the first vertical incision.. (6) Closure of the skin wound, with drainage, and splinting of the limb.

Massage was begun after three or four weeks.

The displaced longitudinal flap which retains its original attachment at either end overcomes the outward pull on the patella and holds it in proper position when the knee is flexed.

One case was completely cured. In another case in which infection occurred the results were not satisfactory. The principal difficulty is to avoid opening the synovial membrane, although a small opening does no harm.

ALCOHOL APPLICATIONS.

KOLBASSANKO (*Therapeutische Monatshefte,* vol. xvii, p. 635) recommends alcohol applications in many surgical diseases. He has seen great benefit from them in simple inflammations, suppuration, and septic conditions, and even upon foci lying at considerable depth. He has been able to prevent many operations by using them alone. Six to eight layers of gauze are saturated with alcohol, varying in strength from 57 to 90 per cent, applied over the diseased area, and covered with a large layer of paraffin paper or oil-cloth. The alcohol is renewed as soon as it evaporates. Tender skins are powdered over with xeroform, or covered with an ointment of xeroform, orthoform, lanolin, and vaselin. If the dressing is to be continued some days, the treatment must be interrupted occasionally to permit the skin to recover. The dressing is markedly analgesic, but only while it is moist. The antiphlogistic action is exerted even on pelvic inflammations. The dressing is continued until the spontaneous pains have disappeared. If applied early, suppuration is often aborted by this treatment; if applied late, suppuration is checked and prevented from spreading. Phlegmonous angina and scarlet fever also are favorably influenced by the alcohol dressings.

BONY SUTURE OF EPIPHYSEAL FRACTURE.

LAMBOTTE *(Annales de la Société Médicale d'Anvers,* December, 1903) is an adherent of direct operative treatment of fractures, especially those of the irreducible variety. Ultimate bad operative results are due to a faulty method or a faulty technique. The writer has had occasion to employ bony suture in three cases. In the first the seat of fracture extended from the inner border of the humerus, 6 centimeters above the epicondyle, obliquely downward into the articulation between the condyle and the trochlear surface. The epitrochlear fragment was displaced; active movements were impossible, passive movements very painful. Operation was performed on the eighth day after the accident. One incision 7 centimeters long was made over the inner surface of the humerus; a second shorter one over the epicondyle. The fragment was liberated carefully and replaced by manipulation, and to retain it the bones were perforated transversely and fastened together by an iron screw, which penetrated the humeral epiphysis; a second screw fastened the fragments together obliquely. On the fifth day passive movements of flexion and extension could be practiced without pain; three weeks later the patient was discharged cured. In the second patient the posterior part of the calcaneum had been torn away. The fragment was secured to the body of the

calcaneum by means of two long screws; the patient walked on the eighth day. A Dupuytren's fracture was treated in a similar manner and with similar success.

PERMANENT CURE OF UTERINE CARCINOMA.

FLAISCHLEN *(Centralblatt für Gynäkologie,* vol. xlii, No. 52) has investigated the remote results of 48 cases of carcinoma of the uterus operated upon by the vaginal route. Of these patients 4 died immediately after the operation, and 20 (42 per cent) remained free from recurrence; 17 of these are still alive, seven to eighteen years after the operation. The remaining 3 died of intercurrent affections; 34 per cent were cured permanently. The diagnosis in all cases was established by microscopical examination. Of the women experiencing recurrence, 16 died during the first two years, 3 during the third year, and 5 in four to five years. The author emphasizes the necessity of early recognition and operation to achieve the best results. These statistics show that the vaginal operation is not a palliative measure only.

SUTURE OF THE HEART.

RENON *(La Tribune Médicale,* 1904, No. 3) states that all wounds of the precordial region accompanied by notable hemorrhage, either external or internal, should lead to a suspicion of wound of the heart and should command immediate intervention. The operation should be performed rapidly and under the most rigid asepsis.

He reports the case of a man who, half an hour before coming under observation, had stabbed himself in the chest. He was almost exsanguinated. The wound was in the fourth interspace below the nipple. After some stimulation operation was performed by making an incision four inches long and resecting the fourth and fifth ribs. The pericardial cavity was cleansed of its clots, at which time the hemorrhage became most threatening. The finger was quickly inserted into the wound, thus partially controlling the bleeding. The heart muscle was sutured over the finger with catgut, the pericardium closed, leaving a small drain in place. The patient was given normal salt solution and other stimulation, but did not rally, dying about thirty hours after the operation. The autopsy revealed the perfect state of the sutures; no leakage had occurred in the pericardium; the wound, which had been thought to be situated at the base, was found at the apex. Both lungs presented an advanced stage of tuberculosis.

PERFORATION OF THE GALL-BLADDER —RESULTS OF OPERATIVE TREATMENT.

NUK *(Deutsche Zeitschrift für Chirurgie,* Jan. 20, 1904) has been able to collect only eleven cases in which operation has been performed for spontaneous rupture of the gall-bladder into the general peritoneal cavity. Perforation occurred most commonly in cases in which a latent period of gall-stones was followed by an infection of the gall-bladder. Obstruction of the cystic duct causes an increase of pressure within the gall-bladder, so that slight external traumatism, such as muscular action during defecation, or vomiting, may determine a rupture.

Stones were present in all the reported cases. In five a stone was found in the gall-bladder opening, and in three the stone was found lying in the peritoneal cavity.

The perforation was single in every instance, and varied in size from a pea to a slit two centimeters long. Perforation occurred in all parts of the gall-bladder with about equal frequency.

In some cases the gall-bladder wall was thickened, in others thinned, and in many the walls were extremely friable. The gall-bladder was contracted in three cases, and surrounded by adhesions in only two.

In one case death was due chiefly to hemorrhage.

The exudate of the resulting peritonitis may be serous and tinged with bile or blood, or it may be mucopurulent. It is usually moderate in amount, but occasionally large exudates have been found. As a rule symptoms suggestive of cholelithiasis precede the perforation. In the absence of such a history a diagnosis of volvulus in one case, obstruction of the bowel in another, and strangulated hernia in a third was made prior to operation.

Expectant treatment of perforation of

the gall-bladder into the free peritoneal cavity is of no avail. Operative treatment has given brilliant results, eight of the eleven reported cases having recovered. When the origin of the peritonitis cannot be determined before operation, the abdomen should be opened in the median line. Gall-stones in the peritoneal cavity or a bile-stained exudate point to the source of trouble and indicate a second incision along the right costal margin. The gall-stones should be removed, and the gall-bladder either excised or drained. The gall-bladder walls usually are too friable to permit of suturing the perforation. The peritoneal cavity should be drained in every case.

FRACTURES OF THE LOWER EXTREMITY—AMBULATORY TREATMENT.

By the use of a splint devised by Hessing, it is possible, according to OPENSHAW (*Lancet*, March 12, 1904), for a patient to begin to walk, with the aid of a cane, within three days after having sustained a fracture of the femur.

This splint is useful mainly in two conditions—fractures of the lower extremity, and disease of the elbow, hip, or knee, or fractures of the same joints. A casing of stout leather strengthened with thin steel bands encircles the thigh, from just above the patella to the level of the tuber ischii behind. The leather is open down the front, where it is to be laced up when fitted. Numerous holes are punched in it to prevent uncomfortable heat, and it is lined with flannel. Along each side are clamped firm, adjustable steel supports, which serve to transmit the weight of the body from the leather casing to the ground. The weight of the body is transmitted to the leather thigh-casing in two ways: first, the tuber ischii on that side rests on the top of the case and the steel bands are arranged to meet this pressure; and secondly, the case is so accurately fitted that the thigh fits into it like one cone into another. In this way no pressure is transmitted to the lower end of the broken femur.

If extension is desirable, an anklet is provided to which are attached three pairs of strong tapes, fastening beneath the steel sole-piece.

Fractures of the tibia and fibula can be held in place by a casing applied to the lower leg. It fits accurately the curve of the leg and is laced down the front, so that in case of any diminution of swelling, or atrophy of muscles, it may still fit closely. The leg casing is adjustable up and down the lateral supports, and also, to some extent, forward and backward.

The following is the method of manufacture: A plaster cast is taken of the thigh, the leg, and the foot. In order to outline the various points on the inner surface of the cast, a line is drawn with an indelible pencil up the entire length of the leg, anteriorly and laterally. The positions of the knee- and ankle-joints are also marked out. The leg is then coated with oil and the plaster bandages are applied. The foot must be kept at a right angle. The plaster must be good and set quickly, and the bandage must be of thin texture so as to fit smoothly and evenly. It is not applied tightly, but merely laid on so as to get the exact size of the limb. The cast is removed while still wet by splitting it down the front by a vertical incision slightly to the outer side, and then horizontally across the front of the ankle-joint. The edges are fitted together again, the incision thus being closed, and the whole is consolidated by a final plaster-of-Paris bandage applied after removal. The cast thus taken should be about one-quarter of an inch thick. From the cast a model is made in solid plaster, and on this the leather while wet is molded and allowed to dry.

In order to insure sufficient strength to the leather casings, especially for the use of adults, thin steel bands are embedded in the leather. This is done by fastening the bands to the plaster cast, so that when the leather has been molded and is removed, the bands may be riveted where they have left an impress on the leather. One band must always strengthen the thigh-piece below the tuber ischii. The holes for the escape of perspiration are punched from within out. The lateral supports are jointed at the knee, but the joint is fixed with a peg screw, so that, if desirable, it may be immobilized.

By means of this splint the patient in nearly every case of fracture of the leg can be made to walk, with or without the aid of a stick, at the end of a week.

SURGICAL DISEASES OF THE KIDNEYS —INTRAVESICAL SEPARATION OF THE URINES FROM THE TWO URETERS AN AID TO DIAGNOSIS.

As there can be no greater calamity in surgery than the excision of a kidney when the remaining kidney is either functionally absent or so imperfect that it is incompetent to carry on by itself the work of the body, BICKERSTETH *(Lancet,* March 26, 1904) calls attention to the fact that by the intravesical separation of the urines with Luys's separator it is now in the power of the surgeon to obtain samples of the urines from both kidneys, thereby being able to determine the state of health of each. The instrument and the procedure have been employed as routine for the last eighteen months in Paris in renal cases.

The separator looks like an ordinary urethral bougie with a rather peculiar curve at its vesical end; at the opposite extremity it is fitted with a handle and screw suggestive of a lithotrite. The shank of the instrument, including the curved portion, is made up of three parts: in the middle there is a thin metallic support, flattened from side to side, and on each side of this, and closely applied against it, is a metal catheter tube, semicircular in section. The two catheter tubes are provided with eyes on the concave border of their curved portion; they can be quickly detached from, and reapplied to, the sides of the median support, and when they are in place they make up, with the support, a single instrument which is circular in section and corresponds in size to a No. 21 bougie, French scale (between 12 and 13 English). Along the upper edge of the median support runs a little rod which is arranged to move backward or forward at will, as the screw at the end of the handle is turned one way or the other; at the junction of the straight with the curved part of the instrument this rod ends in a little chain, the other end of which is attached close to the instrument's point. When not in actual use the chain is slack and lies closely along the hollow of the curve, but by turning the screw the chain can be tightened up until it forms a straight and rigid cord across the curve.

To prepare the instrument for use the two catheter tubes are detached, and then, over the median support with the chain slack, a thin tube of pure rubber specially prepared for the purpose is drawn. The catheters are replaced and all is ready for work. It will be noted if the chain be now tightened up that as this rises it gradually stretches and draws out the rubber tube until, when the chain is tight, there is a complete septum of rubber filling up the whole curve of the instrument. The curves of the instrument apply themselves against the floor and neck of the bladder when the separator is in use. The floor of the bladder is depressed by the separator, and the natural elasticity of the parts is quite sufficient to cause them to fit closely against the convexity of the curve, only very slight pressure being required to make a perfectly water-tight division.

In Luys's separator, along the whole of the convexity of its curve, the lower edge of the median support projects appreciably beyond the lower edges of the two lateral catheters, and this is an essential point, so that the lower edge of the actual "septum" may make good contact with the floor of the bladder. Copies of the instrument have found their way on to the English market in which this point seems altogether to have been lost sight of.

Though it is easier and better to introduce the separator while the patient is lying down, when once the curved part of the instrument has entered the bladder he must sit upright, and must remain in this position throughout the whole time during which the separation is going on. This is absolutely necessary to bring the true floor of the bladder into its proper position as the lowest part of it, and in order that the curves of the instrument may fit snugly and closely against those parts for which they were designed. A special table is not absolutely necessary. The measure may be carried out satisfactorily with the patient laid across a bed or on an ordinary table with the feet supported on two stools. If a back-rest, closed, is placed underneath the patient's loins and back, an assistant can easily raise this when required, so as to set the patient up and support him comfortably in the upright position for as long as may be necessary.

Before making any other preparations

the patient should be given a pint of water or tea to drink.

General anesthetics are not absolutely indicated, though on this point the operator must use his own judgment.

A thorough cleansing of the parts about the urethral orifice can be done by a nurse, who then places a pledget of lint soaked in five-per-cent cocaine solution between the labia.

The first step of the actual procedure is to pass a catheter and to draw off and to set on one side the specimen of the "mixed urines" thus obtained. Next the bladder is washed out, and upon the carefulness and thoroughness with which this is done much will depend. It is essential that the bladder should be thoroughly clean, and if each of the last two or three "washings" is collected in a clean urine glass, and the fluid is seen to come back perfectly clear, the surgeon may feel satisfied that so far he has done his work well. Then about two ounces of fluid is injected into the bladder, and all is now ready for introducing the "separator." As a rule the instrument slides easily and smoothly into the female bladder without any difficulty at all; in the male a little difficulty may at first be found. The curves of Luys's separator, designed solely with the object of making the instrument fit closely and naturally against the floor and neck of the bladder—and which at first sight may perhaps strike an observer as peculiar—are, after all, only a little shorter and sharper than those of the French "bougies de Béniqué," in which very similar curves are selected as being most suitable for the ordinary instruments used in the treatment of stricture. These curves, when once the surgeon is used to them, do not cause any difficulty in getting the point of the separator well into the bladder, but it must be admitted that at and beyond this point when it is required to pass the whole curved part of the instrument right on into the bladder itself a little difficulty may certainly be met with, until by practice the operator has learnt how to do it. As soon as the curved part has been passed fairly into the bladder, the back-rest is raised and the patient is placed in the sitting position. Then, by turning the screw at the end of the handle, the rubber partition is raised, and the injected fluid is allowed to run off by the two catheter tubes, the ends of which have been closed by the fingers during the foregoing manipulations. This not only shows that the catheter eyes have not become blocked by urethral mucus, etc., but by filling the catheters themselves, it starts what seems to be a siphon action, and allows the urine to flow off from the bladder as fast as it enters it from the ureters. In order that the curve of the instrument may press with sufficient firmness upon the floor of the bladder to make the partition water-tight and the "separation" trustworthy, only one thing more is now necessary—the surgeon must raise the handle a little, and while doing this, at the same time draw the whole instrument gently forward toward him. The most gentle pressure suffices for this, and no force at all is either necessary or permissible. At this stage patience is required. The surgeon must not put the collecting tubes under the catheters at once, but must wait; he may have to wait three or four minutes, or even longer sometimes, until the last drops of the injected fluid have come away and urine itself begins to flow. When all is going well, the manner in which the urine flows from the catheter tubes is always most striking and characteristic. It comes with the greatest regularity, four or five drops at a time, then a pause for an appreciable interval, and after this another group of drops. Each of these groups of drops represents an "overflow" from the little pool of urine in the bladder in which the other end of the catheter tube is lying, and these periodic overflows, of course, correspond with the rhythmically recurring jets by which the urine normally escapes from the ureter into the bladder. When once the operator is satisfied that all the injected fluid has run off and that urine is now coming, he may place the collecting tubes in position; in about twenty minutes he will probably have collected about six cubic centimeters in each tube, and the tubes will be full. They can then be replaced by a fresh pair of empty tubes, and in this way a second, and if necessary, even a third, pair of specimens can be obtained.

Having accomplished the separation of the urines, the next question to consider is how to obtain the fullest possible information from the specimens which have

been secured. The surgeon can, of course, detect at once the presence of blood or pus in either of the specimens, and he can also note whether there is any difference between the two urines either in quantity or color or in the character of any deposit; but when it comes to applying the ordinary routine chemical tests he must remember that the amount of urine which he has at his disposal must always be small. The little glass tubes used to collect the urines as they drop from the two catheters hold about seven cubic centimeters (two drachms) each, and though the rate at which urine flows from the kidneys of course varies, on the average it takes about twenty minutes for a healthy kidney to fill one of these tubes. More urine can be obtained by waiting, but it is not desirable for either the surgeon or the patient that the sitting should be unduly prolonged. There will not be enough urine to float an ordinary urinometer, and therefore if the surgeon wishes to know the specific gravity he can get it, approximately, by employing a little tube containing three or four glass beads, each one of which is arranged to float in fluid of a certain definite density. He will also have to be economical of the urine in any tests he may use for albumin or for sugar.

ESERINE IN THE TREATMENT OF POST-OPERATIVE INTESTINAL PARALYSIS.

Paralysis of the intestines, as indicated by progressive meteorism, bilious vomiting at irregular intervals, absolute constipation, and rapid, thready pulse, is a condition from which patients not infrequently perish shortly after operation. In most of these cases countless autopsies have shown that there is no true infection present, but simply an accumulation of gas in the intestines.

Based on an experience of three years, ARNDT *(Centralblatt für Gynäkologie,* March 5, 1904) strongly recommends the hypodermic use of 0.001 gramme of eserine salicylate in freshly prepared solution for the treatment of this condition. He has never used more than 2 milligrammes in one day, but two or three times this amount may be used with safety. If the specified dose is not effective, it is probable that a microbic infection is present. In most of the writer's cases relief, shown by the passage of flatus, was obtained within an hour. Frequent lavage was useful in overcoming the associated gastric distention. No ill effects were observed in any of the cases.

GASTROSTOMY FOR THE EXTRACTION OF TWENTY-FIVE FOREIGN BODIES.

MONNIER'S patient *(Gazette des Hôpitaux,* 1903, lxxvi, 127), a man of twenty-two, complained of pain in the left hypochondrium and around the umbilicus; he had numerous greenish-black evacuations. In the angle between the transverse and descending colon a body shaped somewhat like a spoon could be made out. Crepitation and borborygmi were present. A rectal examination showed the presence of an enormous number of stony scybalæ. Lavage and enemata resulted in the evacuation of some of these.

Operation showed the stomach to be enormously enlarged, extending to three fingers below the false ribs. The walls were thickened, and the stomach seemed to contain several hard bodies, necessitating its opening. The ends of two discolored coffee-spoons appeared first, and in succession the following objects were removed: eight spoons, one fork with three prongs, its broken-off handle, a second fork handle, the fourth prong of this fork, a hinge, a sharp needle, a nail, and other objects—in all 25 pieces weighing almost a pound. No erosions could be discovered. The patient recovered very quickly. He explained that the objects had been swallowed with suicidal intent.

MANUAL SEPARATION OF THE PLACENTA—VALUE OF RUBBER GLOVES.

Manual separation of the placenta is the most dangerous of all the obstetrical operations. Its mortality is 13 per cent, as compared with 8.6 per cent for Cæsarian section, 4.8 per cent after version and extraction, 4.4 per cent after forceps operation, and 2.2 per cent after premature delivery. Only one-third of the patients recover without some complication after this interference, one-half of the remainder suffering from some grave type of puerperal fever. According to BAISCH *(Deutsche Medicinische Wochenschrift,* 1904, xxx, No. 6) manual separation is

indicated immediately only in very severe hemorrhage (2 to 3 pints); ordinarily, Credé's method should be employed for one to two hours, first without and then with ether, and only as a last resort should the hand be introduced for the purpose of removal. Manual separation is indicated also in partial retention of the placenta. Infection is due to hurried operation and insufficient sterilization, since during the act of removal all the germs present are inoculated into the huge wound represented by the interior of the uterus. The use of rubber gloves is of the greatest value in these cases, and since their employment the mortality at Tübingen has fallen to *nil*, the morbidity to 30 per cent.

BLOODLESS OPERATIONS ON THE SKULL UNDER LOCAL ANESTHESIA.

HEIDENHAIN (*Centralblatt für Chirurgie*, March 5, 1904) has succeeded in producing local anesthesia in several cases in which he has operated on the skull for caries, tumor of the brain, etc. He employs a .5- to 1-per-cent solution of cocaine, to each cubic centimeter of which has been added one or two drops of .1 solution of adrenalin. One cubic centimeter of this solution injected hypodermically will produce complete anesthesia of the skin, subcutaneous tissues, and fascia over an area the size of a silver dollar within half an hour. By injecting it beneath the occipito-frontalis aponeurosis, the bone and dura can also be anesthetized. The anesthesia will persist for hours.

In Germany 0.05 gramme is considered the maximum dose of cocaine, but Réclus, with an experience of 7000 cases, uses as much as 0.20 gramme in dilute solution. When using large doses the patient should not fast, and should partake of a cup of coffee with a little alcohol during the operation, and some thick soup after it. In addition the patient should be kept in the horizontal position during the operation, and for at least an hour after its completion. The increased tolerance to cocaine when used in this way is caused by the local anemia produced by the adrenalin.

In performing operations for brain tumor in two stages, the osteoplastic flap can be formed with advantage by this method of local anesthesia, and the excision of the growth can be deferred for several days. The method should prove valuable for disease originating in the middle ear.

To avoid the danger and loss of time incident to hemorrhage from the occipito-frontalis, Heidenhain surrounds the proposed line of incision by a running stitch, the successive loops of which encircle all of the soft tissues overlying the bone. This suture does not interfere with the nutrition of the flaps, and it is allowed to remain until the cutaneous sutures are removed.

CARCINOMA OF THE BREAST—OPERATIVE TREATMENT.

In operating for cancer of the breast, CHEYNE (*Lancet*, March 12, 1904) is guided by two fundamental principles, based, first, on the view that cancer is primarily a local disease, and secondly, on the removal of all probable lines along which it may spread, whether visibly infected or not.

The skin should be removed for a distance of at least two inches in all directions from the cancer, but the incision must not be carried straight down to the muscle. It must shelve gradually away from the breast, so that, for instance, in the case of the upper incision in a fairly fat woman, the pectoral muscle is not exposed till just below the clavicle. Unless this is done lobules of the breast almost inevitably will be left behind. The pectoral fascia must be removed completely, and the whole of the sternal portion of the pectoralis major should be taken away in most cases.

When the axillary glands are only slightly involved and the nerve supply can be preserved, it is not necessary to remove the pectoralis minor. The fascia of the serratus magnus where it is exposed on the axilla should be excised. All the glands and fat of the axilla should be removed in one mass along with the breast. In removing the glands along the axillary vein it is particularly important to lift up the vein at the apex of the muscle and remove the fat and glands which lie behind it. If in clearing out the axilla infected glands are found high up, the probability of commencing infection of glands above the clavicle is very considerable,

and under these circumstances the posterior triangle should be opened and the fat and glands should be cleared out of the root of the neck. Marked enlargement of the supraclavicular glands renders the case inoperable from the point of view of radical removal.

The writer has been able to trace all but one of thirty-four operative cases in which six to thirteen years have elapsed since the operation was performed.

In fourteen cases recurrence has taken place, and thirteen have died from the disease. Two patients died from other troubles without any trace of recurrence having manifested itself. Of the thirty-one cases in which the final results as to recurrence are known, seventeen, or 54.8 per cent, are alive and well; and fourteen, or 45.2 per cent, have recurred. This gives a very fair estimate of the final results of the modern operation as applied to all cases except to those in which it is manifestly impossible to remove all the existing disease.

Eight of the cases were slow-growing cancers, of which six remained well, one recurred, and one was lost sight of. The remaining twenty-six were more rapidly growing cancers; of these thirteen remained well and thirteen recurred.

In nineteen of the cases there was only a small tumor of the breast with a moderate infection of the axilla. Of these thirteen remained well, five recurred, and one has been lost sight of. In thirteen of the cases there was marked infection of the axillary glands, in six of which there was recurrence, and in seven no recurrence.

Distinct enlargement of supraclavicular glands was noted in two cases, with subsequent recurrence in both.

There is no possibility of prophesying in regard to recurrence in individual cases, for in the most favorable it may take place when the disease apparently has been widely removed, while in others, which seemed extremely unfavorable, the patient has remained well. The most striking fact in regard to these cases is the great rarity of a second operation, for in the above list a second operation was performed in only three instances. When recurrence takes place it is most frequently in the supraclavicular glands, or in the bones, or in some internal organ. In a few instances where nodules have appeared on the side of the chest, this as a rule has not been the first place in which the recurrence was noted.

In this series there were two distinct instances of late recurrence. In one case the disease appeared about six years after operation, apparently about the sternum and mediastinum. In the second the disease manifested itself in the glands of the neck seven years after the operation.

THYMIC TRACHEOSTENOSIS.

Cases of thymic tracheostenosis are so rare that CARTER (*Medical Record*, April 2, 1904) believes himself justified in calling attention to the subject on the basis of one case in his own experience. He is of opinion, however, that many sudden deaths among infants, attributed to some other cause, are really due to hypertrophy of the thymus.

The term thymic tracheostenosis is used advisedly, differentiating, as it does, a condition caused by pressure of a hypertrophied thymus gland upon the trachea from an enlargement of the gland downward, and causing death by interference with the circulation. In the former case the symptoms are those of an obstruction to the passage of air in and out of the lungs, and usually results in asphyxiation, while in the latter death results very suddenly from syncope.

The patient is usually poorly nourished or rachitic. There is an inspiratory and expiratory stridor, and cyanosis is extreme. Laryngeal stridor may be a prominent symptom. Glöcker reports three cases in which this symptom was prominent, and in which the autopsy showed that death was due to thymic enlargement.

The treatment is usually unsatisfactory. Rehn, however, reported a case in which he opened the mediastinum, drew the gland forward and stitched it to the tissue over the sternum. The patient was relieved at once and recovered. Spontaneous cure of simple enlarged thymus occurs in six to twelve months, and is due to increase in the size of the thorax and development of the rings of the trachea rather than to a diminution in the size of the gland.

A study of his case leads Carter to

make the following observations and suggestions:

1. In all cases of laryngeal stridor it should be determined whether or not the thymus is enlarged.

2. On account of surgical shock being badly borne by infants, and especially those in this condition, if the symptoms are *not* urgent, postural treatment should be tried, and if in any position of the head and neck relief is afforded, that position should be maintained by suitable apparatus until nature has effected a cure by enlargement of the thorax, strengthening the tracheal rings, and diminution in the size of the gland.

3. Intubation, tracheotomy, and artificial respiration do no good.

4. The surgical procedure of opening the mediastinum, bringing forward the gland and stitching it to the tissue over the sternum, should be performed immediately if there is danger from asphyxia.

KOLLMAN FIVE-GLASS TEST.

While he is disposed to accept in the main the correctness of the now universal custom among genito-urinary specialists of making urethroscopic examinations in nearly every case of urethral disease, MUNDORFF *(Medical Record,* April 2, 1904) believes that there is a proportion of cases which do not permit of such examination, such as in cases of suspected tuberculous disease of the bladder or prostate, acute urethritis, stricture, abnormally small meatus, and the like. In these cases, as well as in those cases where the urethroscope may be employed, the Kollman five-glass test may be advantageous in helping to a diagnosis.

The method is simple, and for all practical purposes efficient, but it is not recommended as an equal of urethroscopy, only as an aid to the general practitioner. The requisite articles are as follows: a syringe of about six ounces capacity, a hard-rubber catheter, and five ordinary urine glasses. The catheter should be one having its eye as near the point as possible, otherwise errors are likely to occur.

The principle of the operation is simply the thorough cleansing of the anterior urethra, and then allowing the patient to urinate into three glasses.

The patient is instructed to call at the office early in the morning, and to retain the night's urine until the physician has thoroughly cleansed the anterior urethra. After cleansing the meatus with some antiseptic solution, the physician introduces the catheter up to the external sphincter, care being taken not to force it beyond this point. Steadying the catheter in this position by grasping the penis with the left hand and holding the catheter by the forefinger and thumb of the same hand, the physician attaches the syringe filled with a mild boric acid solution, and gently forces the fluid into the urethra. The returning fluid is allowed to fall into a urine glass held by the patient. The physician examines this and notes the presence of shreds and mucus. After detaching the syringe, it is again filled and the irrigation repeated. All the solution returning from the urethra is poured into one glass and is known as No. 1. The irrigation is continued until no more shreds are found in the irrigating fluid. Ten to fifteen irrigations may be necessary before this result is reached. When the physician is certain that he has removed all shreds present in the anterior urethra, he allows the fluid returning from the last injection to remain in the glass held by the patient, and designates this as No. 2, or the "control glass." The catheter is then withdrawn and the patient is permitted to urinate into the remaining three glasses, numbered respectively three, four and five. Glass No. 3 should always be regarded as doubtful, since it is possible that some shreds in the anterior urethra did escape the irrigation. Shreds in glasses No. 4 or 5 signify pathological changes in the posterior urethra, bladder, and possibly kidneys.

A convenient schedule in preserving results of such examinations is appended herewith:

	I	II or control	III	IV	V
Normal	shreds or clear	clear	clear	clear	clear
Anterior urethritis	shreds	clear	clear	clear	clear
Anterior urethritis	shreds	clear	shreds	clear	clear
Anterior and posterior urethritis	shreds	clear	shreds	shreds	shreds or clear
Posterior urethritis	shreds or clear	clear	shreds	shreds	shreds or clear

Possessing such schedule, the physician need but note below each column the con-

ditions found, thereby having at a glance the result of the test.

A tight meatus may interfere with the proper performance of the test, by hindering the return flow of the irrigating fluid, and thus forcing it through the external sphincter. Of course, under such conditions the results are worthless. Employing a catheter with its eye situated as near to the tip as possible is imperative, otherwise there would be an area of the urethra—that portion extending from the sphincter to a point corresponding to the situation of the catheter's eye—that would not receive the play of the irrigating fluid. For this reason it is a good plan to turn the catheter with each injection, in order that no part of the urethra escape the injected fluid.

The test is completed by making microscopical examinations of the morphological elements found in the irrigating fluid and in the urine. Shreds from the anterior urethra are composed of long twisted threads or rolls of epithelial cells, pus cells, and mucus. These epithelial cells are usually of the flat variety. The pus cells may or may not contain gonococci. Filaments from the posterior urethra are simply particles of the secretion which are contained in the ducts of the prostate gland, and which have been pressed out by the contraction of the muscular tissue; they are somewhat shorter and thicker than those from the anterior urethra, and usually sink rapidly to the bottom of the glass. Epithelial cells from the posterior urethra are of the transitional type, and are difficult to differentiate from those of the bladder. The epithelium of the bladder resembles in its character that of the ureter, namely, transitional stratified. According to Bizzozera, the type of the cells from the pelvis of the kidney, ureters, and bladder are identical. These cells are usually smaller than those from the anterior urethra, are of a polygonal or elliptical shape, and contain a large nucleus. The protoplasm is markedly granular. Von Jaksch differentiates their origin as follows: small numbers speak for the ureter; moderate numbers, and lying like the tiles of a roof, indicate the presence of a pyelitis; while large groups of cells signify bladder desquamation. He adds, however, that this method should not be regarded as an absolute guide in diagnosis, but should be considered with other symptoms. Blood cells in one or the other glass will indicate from what part of the urethra or bladder hemorrhage ensues.

CHRONIC GASTRIC DISEASE CAUSED BY NARROWNESS OF THE PYLORIC ORIFICE.

In operating upon various cases of chronic gastric derangement, MAYLARD (*British Medical Journal*, Feb. 20, 1904) has met with a condition of the pyloric orifice which suggested that the condition was probably one of congenital origin. He gives the details of seven such cases treated, and successfully, by operation.

The symptoms are so variable that they serve to mask their true cause, but the most suggestive are:

1. The existence of obstinate gastric symptoms during young adult life, not to be accounted for by any of the usually recognized causes, functional or organic. Often the patients are in a fairly good social position, where neither excess nor deficiency in the necessities of life exist; and often, too, the sufferer is one only of a family otherwise healthy in all its branches.

2. The patients are mostly women under the normal standard both in stature and build. It is only somewhat natural to suppose that this is likely to be so, because an amount of development of the fold, which in a viscus of naturally large size might not be sufficient to produce obstruction, would certainly do so in one of less dimensions. The cases reported were all women of comparatively small build, and, on account of the usually smaller stature of the female as compared with the male, it may reasonably be supposed that the former are more likely to suffer from any undue narrowing of the pyloric orifice than the latter.

3. The great improvement it is always possible to effect by dieting; but the certainty with which any return to a normal state of living will call forth a renewal of the symptoms.

Operation is, of course, the only means of cure. It is not absolutely necessary in all cases, as the patient may, by careful attention to diet, doubtless live for years, and eventually die of diseases quite un-

connected with the stomach trouble. In nearly every case, however, it must be more or less an invalid existence.

Of the three operations which may be performed — pyloroplasty, pylorodiosis, and gastrojejunostomy—the last is the proper one to adopt. Relief may be more or less immediate, but often it takes months to effect a cure. Where the stomach has been deranged for years careful treatment must be carried out for some time after the operation. The following procedure is based solely on the attempt to leave the parts after operation as much as possible in their normal anatomical relation:

An oblique incision is made through the skin commencing about 1 inch below the right costal margin and 1 inch to the right of the middle line, and extending for from 3 to 4 inches across the middle line downward and outward at a distance of about 1 inch from the left costal margin. By this incision the right rectus is divided for about half an inch and the left for 2 inches or 3 inches. The pylorus is exposed and an easy examination of the stomach afforded. To attain a perfect cicatrix it is necessary that there should be union of the anterior and posterior layers of the rectus sheath by separate lines of suture.

The posterior operation by simple suture is the one, with few exceptions, practiced. After withdrawing and turning upward the stomach and transverse colon, the mesocolon is teased through, and its edges secured by three or four stitches to the posterior wall of the stomach, which is made to present. The jejunum is picked up, closed to the duodeno-jejunal bend, applied to the stomach, and stitched to it for about 3 inches, the direction being such that when the stomach is replaced it and the united bowel still occupy much the same relation as before union. The opening of communication about 1½ inches long is made close to the great curvature, so that it comes to occupy the most dependent part of the viscus, and has also an inch or two of stitched surfaces above it. Thus it will be seen that no "angulation" of the gut is possible; there is no long loop of proximal bowel to become "waterlogged," and possibly cause trouble in the remote future; there is no need for an enteroenterostomy; and as the bile and pancreatic juices very soon mix with the gastric juice, there is little fear of the formation of peptic ulcers in the distal limb. The ejection of bile into the stomach never takes place, because the method of attachment adopted causes it and the pancreatic juice to be shot past the opening into the more readily accessible channel below. The method, practiced now for more than a year, has been followed by an entire absence of all untoward symptoms, and may insure against any complications in the future.

Correspondence.

LONDON LETTER.

By George F. Still, M.A., M.D., F.R.C.P.

Within the past few weeks the annual Cavendish Lecture of the West London Medico-Chirurgical Society has been delivered by Professor Johann von Mickulicz-Radecki of Breslau on a subject which even in its present immature stage is full of interest and which in days to come may have a very real practical importance in treatment, namely, the possibility of increasing the power of resistance to infection in certain tissues after operation, particularly in the peritoneum. At the outset the lecturer paid a tribute to the discoveries of two observers of whom Englishmen are justly proud, Jenner and Lister, whose investigations he said were the basis of all efforts to combat infectious diseases in animals and men. Infection of a wound by rabies or tetanus can be treated, and successfully treated, by inoculation. Why not render patients immune to infection of operation wounds with pyogenic bacteria by some similar inoculation? The difficulty lies chiefly in the variety of bacteria which infect wounds: it would be necessary to use no one antitoxin but a combination of several antitoxins. Within the past ten years several observers have attempted to solve the problem; and it has actually been found possible to increase the power of resistance to such microörganisms as staphylococcus aureus and albus, but not to such a degree as to be of any practical value. In the case of the streptococcus pyogenes a greater

degree of protection has been attained, but it seems to be effectual only against the particular strain of streptococcus from which the antitoxin was prepared. The practical surgeon therefore turns from such methods as at present useless. A study, however, of the efforts of nature to counteract such infections has yielded another suggestion. It seems that a large production of leucocytes, hyperleucocytosis it may be called, is a prominent feature in the phenomena following on a local infection and is a protective measure on the part of nature; may it not be possible to produce this hyperleucocytosis artificially? In the occurrence of such a condition as a natural phenomenon lies the explanation of the curious fact that during perityphlitis the resistance of the whole peritoneum is so increased that infections which under other circumstances would be deadly seem to lose their effect. If by artificial methods such an immunity of the peritoneum could be obtained, how greatly would the risks of abdominal operations be diminished! At present any operation in which the contents of stomach or intestine contaminate the peritoneum is extremely dangerous, and even with every care to isolate bowel or stomach from the rest of the peritoneum by packing around with gauze before resection or incision of the stomach or intestine, the danger is still considerable. The mortality in resection operations is not less than 20 per cent.

By experiments on animals it has been ascertained not only that it is possible to produce hyperleucocytosis artificially, but also that this artificially produced hyperleucocytosis has a real protective value against various infections. Injections of normal saline solution into the peritoneum of the guinea-pig raised the resistance of that tissue against pyogenic infection in some cases as much as sixteen-fold; it was found also that a similar increase of resistance could be obtained by subcutaneous injections of neutralized nucleic acid. To bring the conditions as nearly as possible into line with those of operations on man, animals were subjected to laparotomy and the peritoneal cavity was infected by allowing contents of the stomach or intestine to escape into it. Only one out of five animals survived when no previous hyperleucocytosis had been induced, whereas when intraperitoneal injections of nucleic acid, or of sterilized cultures of colon bacillus, or subcutaneous injections of neutralized nucleic acid had been used previously, ten animals infected similarly during laparotomy all recovered. The protective effect was less when the injections were made after the infection, and seemed to be effectual only when made within a few hours after the infection.

Encouraged by these experiments on animals Professor Mickulicz-Radecki began to use subcutaneous injections of neutralized nucleic acid on human subjects before abdominal operations. Fifty cubic centimeters of a solution of neutralized nucleic acid were injected a few hours before operation; this was found to produce marked hyperleucocytosis, and although in some cases it produced a feeling of giddiness or sickness or a rash of erysipelatoid character at the site of injection, it was usually without any untoward effect. Out of 47 cases in which laparotomy was performed and in which the peritoneum was infected by the escape of intestinal or gastric contents only seven died, and in none of these seven cases was death caused by peritonitis. In most of the cases the peritoneal cavity was irrigated with normal saline solution at the time of the laparotomy, and some of the solution was purposely left in the abdomen. The value of this local application of saline solution lies not merely in its cleansing effect, but also, as shown by the experiments on animals, in its provoking some local hyperleucocytosis and so increasing the resistive power of the peritoneum against infection. The use of these saline irrigations was, however, merely an adjunct to the protective treatment; the value of the subcutaneous injections was the point on which the lecturer wished to insist.

It is not often that the medical profession in England combines to instruct the Government on the way it should go, but the past month has seen a notable instance of this combination in a petition signed by 14,718 medical men, praying for certain alterations in the curriculum of the public elementary schools. A deputation waited on the Marquis of Londonderry as Minister of Education, urging that instruction in the elementary principles of hygiene, including temperance and the deleterious effects of alcohol,

should be given both to teachers and children. Sir William Broadbent, Sir Thomas Barlow, Sir Lauder Brunton, Sir Victor Horsley and other distinguished members of the profession spoke in support of the petition, which had at any rate the effect of drawing from the Minister of Education a statement that steps are already being taken to accomplish some such object.

A new lecture has been added to the number of annual orations delivered in connection with the various learned societies in London. The Society for the Study of Disease in Children, which itself is yet in its infancy, has established a "Wightman Lectureship," and the first lecturer was Mr. Clement Lucas, who a few days ago delivered a most interesting lecture on hereditary bias and early environment in relation to diseases and defects of children. The relative vigor of father or mother, according to Mr. Lucas, is a factor in determining which the child shall follow, not only in features, but also in sex and strength. In certain families the strength seems to be concentrated in one sex, whilst any children of the other sex are delicate or die young. The practical moral drawn is somewhat startling: the man who marries an only daughter, who in virtue of having no brothers is married for her fortune, is likely to pay the penalty of being childless, or at any rate son-less. The influence of rickets in causing enlargement of the skull might be utilized, so it was suggested, in microcephalic idiots and small-headed infants, who might be dieted so as to acquire rickets and in this way obtain more room for the brain to develop. Mr. Lucas considered that persons who had suffered from rickets in early life received some compensation for physical deformities such as knock-knees or bow-legs, in a large capacity for learning! The possibility of contagion rather than heredity being the cause of family incidence of cancer is a hopeful suggestion; an instance was quoted in which a husband had rodent ulcer, his wife died with cancer of the breast, and a gentleman who lived in the same house died of cancer of the tongue. In speaking of congenital deformities the lecturer referred to a curious foreshadowing of harelip in one generation by poor development or absence of the lateral incisor tooth in the previous generation. At a recent meeting of the Society for the Study of Disease in Children a case of hydrocephalus was reported by Mr. C. A. Morton, in which subdural drainage was attempted. This operation, introduced a few years ago, consists in connecting the interior of the lateral ventricle with the subdural space by means of a rectangular metal tube, one arm of which passes through the cortex into the ventricle while the other arm lies free in the subdural space. The tube is ligatured in this position so it shall not become displaced, and the wound in the skull is then closed by replacing the dura mater and scalp in position. Theoretically the cerebrospinal fluid should escape thus from the interior of the brain into the subdural space, from which, according to certain physiological observations, it should be conveyed by the Pacchionian bodies away into the lymph paths and so removed. Mr. Morton's case showed, however, that, excellent as the theory is, the actual result may be far less satisfactory. The head continued to increase in size after the operation and at autopsy it was found that the ordinary internal hydrocephalus had been converted into an external hydrocephalus. The fluid had remained unabsorbed in the subdural space. The operation has now been performed many times, and although success has followed it, the result has usually been simply to hasten death.

Amongst the events of the past month there is one which calls for mention as having excited considerable public interest in London. The King and Queen went to St. Bartholomew's Hospital on July 6th and laid the foundation stone of the new wing of the building which has just been begun, and which is to accommodate the out-patient and casualty departments and certain special departments. The streets on the route were gaily decorated, and no less than 3000 persons witnessed the ceremony in the hospital.

As I close this letter a general pilgrimage of the medical profession to the shrine of learning at Oxford is in progress, and next month I hope to be able to give some account of the meeting of the British Medical Association there, for several subjects of practical importance in therapeutics are to be discussed.